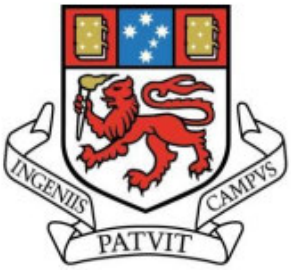

UNIVERSITY OF TASMANIA

Picture perfect: A mixed-methods analysis of engagement with image-based social media content.

Emily Lowe-Calverley

BPsych(Hons)

Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy (Psychology)

in the College of Health and Medicine, School of Medicine

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Abstract

With the convenient, constantly-updating presence of social media, people are consuming a flood of images daily. Visual material is now available at a user's fingertips and the nature of this material has evolved; not only featuring models and celebrities, but friends, peers, and 'influencers'. The detrimental effects of idealised traditional media on wellbeing (particularly body dissatisfaction) are well documented. A growing body of literature has emerged to address social media's place in this theoretical landscape, with recent research beginning to consider the effects associated with Instagram – an image-based social media platform. Early findings suggest links between Instagram use and body dissatisfaction, however many of the nuances of this platform, including the perception of 'influencer' status, have yet to be considered.

In this context, the aim of my thesis was to explore some of the complexities associated with the Instagram platform, with a view to defining the mechanisms that potentially underlie the negative effects associated with viewing some Instagram images on factors such as mood, body dissatisfaction and self-esteem. To this end, my thesis firstly comprises a narrative review (Chapter One). Here I, along with my co-authors, trace media effects from traditional to social media; our discussion culminating in an agenda for future research. From this agenda we distilled two core areas for focus in this thesis: firstly, a need for greater understanding of the key image-based behaviours users engage in on social media (namely image-editing, posting, and 'liking'), with a focus on self-presentation; and secondly, providing an initial examination of the role of 'influencers' in the effects of Instagram use informed by our understanding of social comparison theory.

The following chapters are presented in two parts, aligning with our two central themes. In Part One (Chapters Two and Three) we sought to investigate the way social media users engage with image-based content. We identified three key behaviours central to

interaction with image-based content: editing, posting, and 'liking'. Our initial focus was broad, either examining social media more generally, or examining the most popular and well-researched platform, Facebook. Taking this approach allowed us to define the aspects of social media use that warranted further investigation in Part Two's localised examination of Instagram.

Part One, Chapter Two presents a study that utilised the Theory of Planned Behaviour model to predict image-editing intentions, controlling for previous editing platform use, Facebook Intensity, and age, and with the inclusion of Narcissism. Analysis of survey data from participants of a variety of ages indicated that editing application use, Facebook Intensity, attitudes, subjective norms, and Narcissism were all significant predictors of intentions to post digitally altered self-images. Attitudes had the strongest association with intentions, while the contribution made by subjective norms likely speaks to the importance of approval and belongingness on social media. Interestingly, perceived behavioural control was not a significant predictor, with our findings suggesting that users experience a great sense of control over whether their posts are edited or not, and that editing-decision making might be unique from other image-based behaviours. The contribution of Narcissism, albeit small, provided support for the prevailing understanding of photo-based activities as self-promoting and superficial.

To complete our general investigation of key behaviours we enquired about the factors that adult users of a broad range of ages consider prior to posting or 'liking' an image on social media. In Chapter Three we took a qualitative approach, analysing open-ended responses using thematic analysis. Interestingly, egoistic motivations and considerations of the audience were at the forefront of peoples' minds when posting and 'liking' on social media, supporting early suggestions that 'likes' may also be a tool for self-presentation. The results culminated in our understanding of posting and 'liking' as complex, multi-factored

behaviours, which users do not engage in flippantly. This complexity suggests that engaging with images on social media is stressful, particularly when users are invested in the content (i.e., their own image) and anticipating a good response from the audience.

Informed by our greater understanding of key image-based behaviours from Part One, in Part Two we aimed to determine the psychological effects of engaging with Instagram images on mood and body dissatisfaction in adult Instagram users. Addressing the possible stress that may be associated with Instagram use (Chapter Three), and the role that investment in one's content may play, in Chapter Four we developed a set of items to operationalise a new construct: Instagram investment. This construct describes the emotional connection that users have with the content they post and the response they anticipate from the audience. Using these items, we examined the relationships between Instagram investment and a selection of psychological variables, discovering small, though significant, links with negative psychological outcomes including depression and stress. Additionally, Chapter Four examined a mediation model, whereby Instagram investment mediated the relationship between number of followers and low self-esteem. Though small, this effect suggests that popularity is more important to a user's self-esteem when they are highly invested in their Instagram use.

Chapter Five details a follow-up of the Instagram investment construct, exploring its personality predictors in order to identify adult users who may be prone to greater investment in their Instagram content and response. Instagram investment was predicted by higher neuroticism and lower honesty/humility. The link found here between neuroticism and Instagram investment provided support for our initial suggestions that there may be negative implications associated with being highly emotionally invested in your posts to Instagram.

Part Two culminates with Chapter Six. Here we detail the first experimental investigation to manipulate 'likes' and 'follow' statistics to examine the effect of 'influencer'

status on adult female viewers' mood, body dissatisfaction, and self-esteem. In doing so, we contribute finer detail to the broader media effects literature. Participants exposed to the same images alongside either 'influencer' (high) or 'peer' (low) level statistics experienced significantly greater negative mood than those in a nature control group. No differences were found between the influencer and peer groups, suggesting that popularity is not critical to determining image-effects. Instead, it appears that idealised female content has negative implications for the viewer regardless of perceived status.

Overall, the findings of my thesis contribute to the broader understanding of media effects by helping to define the mechanisms by which social media influences the user. My studies present the complex underpinnings of image-based behaviours and suggest that these behaviours are much more than simply 'clicking a button'. The findings help to define the circumstances under which a user can exert control over their online self-presentation and propose Instagram investment as a potential means of detrimental Instagram effects. Our understanding of social comparison theory as it pertains to Instagram is also extended through this research, with perceived target proximity of little importance and the image itself as the key determiner for effects. This thesis sparks broader questions for social media effects and image-based content, as well as conceptualisation of online identity and self-presentation. For example, in the context of selective self-presentation and image-editing, are there ramifications for how users perceive their actual 'offline' selves? In the interests of preserving wellbeing, users may be best served by limiting the amount of idealised content they view on Instagram, however longitudinal methods are the necessary next-step for painting a complete picture of the impact of Instagram on the viewer.

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Chapter 1: Introduction

Body dissatisfaction from traditional to image-based social media:

A theoretical commentary and agenda for research

Emily Lowe-Calverley and Rachel Grieve

1.1 Abstract

Body dissatisfaction is commonly attributed to unrealistic standards of appearance presented in the media. Here we[1] examined the influence of media images throughout the transition from traditional media to social media. For traditional media, compelling findings link thin-ideal images to appearance dissatisfaction. Contemporary findings also show a link between use of Facebook and body concerns. However new forms of image-based social media (e.g., Instagram) - that centre around the viewing, editing, and sharing of images - have emerged, changing the dynamic of image interaction and, perhaps, the influence images have on their audience. New categories ('fitspiration') and sources ('influencers') of images also pose a potential threat to body concerns. We argue that Instagram stands apart from other image-based platforms, providing a uniquely suited environment for images to influence the viewer. We provide an agenda for future research with a view to clarify the role of image-based media such as Instagram in influencing body dissatisfaction.

[1] While the thesis is a single author document, the work reflects the input of a team. To acknowledge this, the collective pronoun 'we' will be used throughout.

1.2 Introduction

Images are a powerful source of influence. They can evoke concepts and emotions, both implicitly and explicitly. Irrespective of existing body-related concerns, brief exposure to body related images can produce automatic affective responses among young women (Watts, Cranney, & Gleitzman, 2008). Explicitly, media exposure has been associated with decreased body satisfaction among females (Grabe, Ward, & Hyde, 2008). Although there is a large literature base examining the influence of media images, new forms of media have emerged. Photos no longer live in the family photo album. Now they are displayed online for friends, family, and the public to see. Technological changes and the rise of social media have altered the way images are presented, viewed, and evaluated. The prevalent sharing of images (Rainie, Brenner, & Purcell, 2012) and the rapidly evolving nature of the images we view heightens the need to re-evaluate the effect that images can have on viewers' thoughts and feelings, specifically, body dissatisfaction.

1.3 Comparison and Dissatisfaction

Body dissatisfaction is a term used for the negative subjective evaluations a person has about the weight and shape of their body (McGuinness & Taylor, 2016). Body dissatisfaction affects both sexes and is found cross-culturally (Cheung et al., 2011; Dixon, Esslinger, Yen, & Grimes, 2015). In general, estimates of body dissatisfaction prevalence are extremely varied, with one review suggesting that figures in the United States vary between 11-72% for females, and 8-61% for males (Fiske, Fallon, Blissmer, & Redding, 2014). Providing further detail, some research suggests that while 67% of males and 58% of females are satisfied with their appearance, they specifically express dissatisfaction with particular aspects of their appearance, such as weight, muscle tone, and the mid-torso region (Dixon et al., 2015). Research from Hong Kong suggests that across cultures a slimmer figure is desired, particularly among women, with 63.3% of women and 38.4% of males between ages

18 and 27 desiring a slimmer body shape (Cheung et al., 2011). A further 38.4% of men in that study desired to be bigger than their current body shape and approximately 23-5% of males and females were content with their current figure (Cheung et al., 2011). Earlier evidence suggested that over 75% of teenage girls desired to be thinner, while over 80% of teenage boys desired to be either thinner or bigger than their current size (Ricciardelli & McCabe, 2001); mirroring similar findings from the 1980s (Silberstein, Striegel-Moore, Timko, & Rodin, 1988). Despite the lack of consistency in exact prevalence figures, the statistics reflect a pattern of body dissatisfaction that has existed for some time. Bucchianeri and Neumark-Sztainer (2014) highlighted the public health concerns that stem from body dissatisfaction, including risk of depressive symptoms, eating disorders and excessive weight gain – all of which impact negatively upon the individual and generate societal costs.

A useful framework for examining body dissatisfaction is Sociocultural Theory. Sociocultural Theory describes a tripartite influence model that explains how three socio-cultural influences (family, peers, and the media) reinforce beauty ideals (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). This model further proposes two primary processes by which sociocultural influence translates to body dissatisfaction – internalization of the thin ideal and social comparison. Social comparison theory describes the process whereby individuals are driven to compare themselves with their peers in order to evaluate their own abilities and opinions (Festinger, 1954). The nature of comparisons can be upward (with those perceived to be superior to oneself), downward (with those perceived to be not as good as oneself), or lateral (with those perceived to be equal to oneself). Social comparison is related to body dissatisfaction (Shahyad, Pakdaman, & Shokri, 2015), and often mediates the relationships between media usage and self-evaluations (Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Fardouly & Vartanian, 2015). One crucial aspect of classic social comparison theory is the idea that similar individuals are the preferred targets of comparison

(Festinger, 1954). In the context of media images, physical and perceived social characteristics may be used to identify individuals as similar. For females, a preferred target of comparison within the media may therefore be a model or 'everyday woman' reflecting relatable characteristics. Unlike in traditional media (e.g., fashion magazines) where the airbrushing of professional models is generally understood, now, on image-based social media (particularly Instagram), the idealisation of images might be more insidious, as editing is not always blatantly obvious. Users need to work harder to remind themselves that the peer-images they are comparing themselves with are likely to be carefully selected and edited to perfection.

We begin with an explanation of media effects on body satisfaction – tracing the literature from traditional to social media. The framework of social comparison theory is used as a guide for explaining the effects of images on individuals' self-evaluations. In the second part of this review we examine Instagram, a highly popular image-based social media platform that is uniquely suited to facilitate body comparison and dissatisfaction. In light of existing evidence and theory, we argue the image-based social media platform Instagram possesses characteristics that facilitate comparison and dissatisfaction. We conclude with an agenda for future research to explore aspects of Instagram use and body dissatisfaction.

1.4 Before Media Became 'Social'

Poor self-perception and body dissatisfaction are often attributed to exposure to mass media; for imposing unrealistic societal standards of weight and beauty through portrayal of the ideal (thin, lean, tall, youthful: for women) physique (Hausenblas et al., 2013), and image retouching (Donovan, 2012). In a decades-old trend, the women portrayed in the media grow increasingly thinner over time (Silverstein, Perdue, Peterson, & Kelly, 1986). Thin women over-represented in contemporary media are often classified as below-average weight (Fouts & Burggraf, 2000), with older findings indicating that women portrayed in the media

frequently met the criteria for anorexia (Wiseman, Gray, Mosimann, & Ahrens, 1992). In contrast, Playboy magazine displayed models with increasing BMIs between 2000 and 2014, potentially suggesting a more recent societal movement away from excessive thinness (Roberts & Muta, 2017).

Research has mostly supported the negative effects of exposure to idealised images via traditional media (i.e., magazines, TV) - demonstrating links to decreased self-esteem and appearance dissatisfaction (Grabe et al., 2008; Groesz, Levine, & Murnen, 2002; Hausenblas et al., 2013; Want, 2009). As little as five minutes of exposure to thin and beautiful media images can result in more negative body image than exposure to neutral objects (Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005). For males, muscular-ideal media images are similarly related to body dissatisfaction (Bartlett, Vowels, & Saucier, 2008). Moreover, traditional media's influence on appearance dissatisfaction also reaches very young girls. In one study 69% percent of girls in grades one to three reported looking at magazines, and girls who had greater exposure to women's magazines were less satisfied with their appearance (Dohnt & Tiggemann, 2006)

Heinberg and Thompson (1995) examined the effects of appearance versus non-appearance related television advertisements on females' self-evaluations of depression, anger, and body dissatisfaction. The results suggested that televised images promoting thinness and attractiveness negatively affect mood and body dissatisfaction, particularly for women with higher levels of appearance-related cognitive distortions, and internalisation of societal pressures (Heinberg & Thompson, 1995). Interestingly, females rate adverts showing thin and average weight models to be equal in advertising effectiveness, despite the abundance of thin models depicted in advertising (Halliwell & Dittmar, 2004). Hargreaves and Tiggemann (2004) also found that adolescent girls exposed to thin-ideal commercials

experienced significantly greater body dissatisfaction than those exposed to non-appearance related commercials, though the effect size was small ($\eta^2 = 0.05$).

In contrast, exposure to muscular-ideal commercials does not produce changes in body dissatisfaction in adolescent males, suggesting the media's impacts on body image are stronger for girls than boys (Hargreaves & Tiggemann, 2004). However, this lack of effect might be attributed to age. Hargreaves and Tiggemann (2004) suggested that males might not develop a vulnerability to muscular-ideal media images until later in adolescence or early adulthood. This inference was supported by a later study (Hargreaves & Tiggemann, 2009), in which the same images were presented to a sample of older males.

According to Social Comparison Theory similar individuals are the preferred target for comparisons (Festinger, 1954). In line with this theory, Cash, Cash, and Butters (1983) asserted that comparisons with everyday women/peers are more impactful than comparisons with professional models. In Cash et al.'s experimental study, 51 female college students completed self-evaluative scales after viewing images of women taken from print media. Participants were assigned to one of three image conditions; physically attractive, physically attractive and labeled as professional models, and not physically attractive. Consensus among four judges informed ratings of physical attractiveness. Participants exposed to physically attractive female images rated their own physical attractiveness lower than those exposed to images of women considered not physically attractive. Interestingly, self-ratings from participants exposed to the attractive condition were also significantly lower than self-ratings from those exposed to the same attractive images labeled as professional models. This result suggests that viewing images of attractive women in magazines may not be as important for our own self-image as viewing images of attractive peers.

However, the effects of traditional media are not always definitive. One meta-analysis found little-to-no effect of thin imagery on viewers, although viewing images of overweight

women was found to have a positive effect on the viewer's body image (Holmstrom, 2004). Another review suggested that media effects are often minimal and are found among those with pre-existing body dissatisfaction (Ferguson, 2013). Although the effects of traditional media may be debated, small to moderate links between media exposure and body image (e.g., Grabe et al., 2008; Groesz et al., 2002) appear to be consistent. Nevertheless, we suggest that the effects of social media, particularly image-based social media, may prove to be more clear-cut.

1.5 Images on Social Media

Alongside the emergence of online media, research reveals associations between Internet media exposure and body/weight dissatisfaction (Bair, Kelly, Serdar, & Mazzeo, 2012; Tiggemann & Miller, 2010). One particularly prevalent online activity is the use of social media. Social media describes online platforms and applications that enable users to share and view content with their social networks. These platforms are enormously popular, with 3.4 billion current social media users worldwide across platforms including Facebook, Youtube, Instagram, Snapchat, and Twitter (Chaffey, 2019).

For most adolescents, Internet use captures time spent on social media such as Facebook (Tiggemann & Slater, 2013). In both adolescent (14-15 years) and pre-teen (10-12 years) samples, Internet exposure is related to body-image concerns, with greater scores on body-image concern among Facebook users compared to non-users (Tiggemann & Slater, 2013, 2014). As well as demonstrating links between social media and body concern dimensions, Tiggemann and Slater (2014) highlighted the large percentage of very young girls accessing and using Facebook (42.6% with their own profile). Interestingly, all of these girls fell below the 13+ age eligibility criterion to sign up for Facebook use (Facebook, 2019).

Images form an integral part of interaction on Facebook, with approximately 350 million photos uploaded to Facebook each day (Smith, 2019). Upward social comparisons on social media are associated with greater appearance dissatisfaction and negative mood than comparisons made in-person (Fardouly, Pinkus, & Vartanian, 2017). Fardouly and Vartanian (2016) found that evidence consistently suggests that social media (particularly Facebook) usage is associated with body image concerns for young females and males, and that this effect may strengthen over time. At the extreme, more frequent Facebook use has also been associated with disordered eating, maintenance of weight and shape concerns, and state anxiety (Mabe, Forney, & Keel, 2014). According to Perloff's (2014) model, individuals with pre-existing vulnerabilities to body image disturbances turn to social media in order to seek gratification such as reassurance or validation of attractiveness. Once using social media, various mediators (social comparisons, transportation, identification, and online normative influences) influence the relationship between use and negative outcomes. For example, users might make upward social comparisons with highly attractive peers. This may, in turn, lower their perceptions of their own attractiveness, relative to the attractiveness of the comparison target (social comparison). Alternatively, according to the model of 'transportation', users might become immersed in online narratives about attractiveness that they perceive to be realistic, and adopt aligning beliefs and attitudes which then impact the way they feel about their own body. These mediators speak to the importance of social factors in influencing the effect of social media use on the user.

The importance of peers for influencing one's own self-image is more pertinent now than ever. Through the Internet and social media, users are constantly exposed to images of others (Slater, 2015). However, as anyone with social media can post, images are now derived from a broader variety of sources than those in print media (e.g., editorial photos chosen for a magazine)– people are therefore no longer exposed solely to the "upper extreme

of the normal distribution of physical attractiveness" (Cash et al., 1983). Individuals now see carefully curated pictures of friends, family, neighbours, and other 'everyday people'; which, according to Cash et al.'s (1983) findings, are potentially more harmful.

Comparisons on Facebook can also be insidious due to the heuristics people employ when viewing others' information, and the influence of the viewer's impressions on their subsequent comparisons. Chou and Edge (2012) demonstrated that those who used Facebook for longer agreed that others were happier than they were, and agreed less with the statement "life is fair". This finding was attributed to the use of the availability heuristic, whereby individuals judge the examples they can most easily recall. Given its voyeuristic nature it is not surprising that everyday individuals engage in impression management on Facebook, so that others might see what the user considers to be the best aspects of his/herself (Zhao, Grasmuck, & Martin, 2008). Selective self-presentation can occur through the selection, editing, and posting of self-images to social media (Fox & Vendemia, 2016). Taken together, this indicates that on Facebook, the availability heuristic may result in an array of examples that exemplify the very best of others' lives – examples that individuals then compare with their more reality-driven impressions of their own lives.

As previously mentioned, Facebook use increases the likelihood of social comparisons with similar targets – predominantly friends or peers, which according to Cash et al. (1983), may be more influential than comparisons to more distant targets such as models or celebrities. With such an awareness of self-presentation on Facebook, it follows that individuals use this knowledge to guard themselves against biases that others lead perfect lives. However, research has demonstrated that while users might be aware of the impression management others engage in, they are still affected by the content they can most easily recall (Chou & Edge, 2012). Viewers may be vulnerable to comparing regular, everyday images or impressions of the self with carefully selected and filtered images of their peers,

which might negatively influence self-evaluations despite individuals being aware that the target of comparison is a perfected representation of the subject.

A closer look reveals that comparisons may differ depending on the relational proximity of the target (Fardouly & Vartanian, 2015). According to Fardouly and Vartanian (2015) users compare their appearance on Facebook most frequently with distant peers, followed by close friends and celebrities, and least frequently with family members. Frequent comparisons with distant peers may be attributed to access to a large number of images belonging to this group on Facebook (Fardouly & Vartanian, 2015). Importantly, this supports the critical influence of peers on comparisons and self-assessments, aligning with social comparison theory, which also highlights that similar individuals are the preferred targets of comparison (Festinger, 1954).

1.6 Instagram

The emergence of newer forms of social media, specifically geared toward the viewing and sharing of images, present an important new area of investigation for social media and body dissatisfaction. Image-based platforms are particularly popular among college students, with image-based Instagram and Snapchat occupying the highest quantity and intensity of use, followed by Facebook and Twitter (Alhabash & Ma, 2017). The advent of dedicated image-based platforms changes the nature of communication, potentially broadening users' everyday exposure to images. The evidence to date suggests that exposure to Instagram negatively influences body image satisfaction (Ahadzadeh, Sharif, & Ong, 2017); and adolescents using highly visual social media (Instagram and Snapchat) report significantly greater body image dissatisfaction and emotional internalising symptoms (e.g. nervous, fearful, unhappy) compared to their non-using counterparts (Marengo, Longobardi, Fabris, & Settanni, 2018). Investment in Instagram selfie feedback (e.g., likes) is also positively associated with drive for thinness, and indirectly associated with body

dissatisfaction via its effect on body surveillance (Butkowski, Dixon, & Weeks, 2019). In the current social media context, specific characteristics of Instagram combined with platform-specific behaviours present compelling domains for future media and body dissatisfaction research. Each of these aspects will now be discussed in turn.

1.6.1 Image-editing

Research examining traditional media has demonstrated the potentially negative consequences of exposure to digitally enhanced photos. Research suggests that digitally enhanced photographs improve product evaluation but negatively affect self-perception across three dimensions: self-esteem, social assurance, and desire to change one's physical appearance (Borges, 2011). Furthermore, the use of text warnings that digital enhancement was used on an image appears ineffective in the reduction of negative effects on self-perception (Borges, 2011). Borges' (2011) finding demonstrates that even when it is acknowledged that an image does not reflect reality, it can still negatively influence aspects of self-esteem. This is consistent with Tiggemann, Slater, and Smyth (2014) who found that there were no differences in body dissatisfaction or mood after exposure to fashion shoot images labelled as retouch-free, and unlabelled fashion shoot images. Moreover, research suggests that disclaimer labels are ineffective for ameliorating the negative effects of thin ideal media, regardless of the size of the label (Tiggemann, Brown, Zaccardo, & Thomas, 2017) or the timing of disclaimer presentation (Bury, Tiggemann, & Slater, 2017). Taken together, these studies support the inference that social media users would be affected by content despite possible knowledge that the information they are exposed to reflects the best (retouched) version of reality (Chou & Edge, 2012).

Understanding the possible influence of enhanced or edited photos is important for appreciating the social media platform Instagram and its potential implications for users. Instagram is a photo sharing app with the ability to pair with Facebook such that photos

automatically upload to both social media platforms. Instagram is the 6th most used social networking site in the world (Chaffey, 2019), and as of December 2018, boasts over 500 million daily active users (Instagram, 2018). Instagram's success coincides with an increased use of smart phones with built in cameras encouraging the instantaneous posting of 'spontaneous', life documenting images. The platform contains in-built filtering capabilities, allowing users to edit their photos prior to uploading. Once, photo editing software such as Adobe Photoshop was required to edit or retouch an image prior to uploading to social media. Now, editing programs are situated within the app, facilitating the adjustment and perfection of photos in seconds prior to posting – making photo editing and enhancement accessible to everyday users. Filters employ different pre-set lighting, colour, and contrast adjustments to alter users' images. For example, the filter 'Amaro' gives photos a subtle vintage look by weakening the centre of the image and increasing exposure (Summers, 2013). However, users can also manually adjust aspects of the image (e.g., contrast, brightness, warmth, sharpness) to edit the image according to their own preferences, or take the image to an external phone-based editing application for more detailed adjustment (e.g., VSCO, Facetune). Additionally, users may include hashtags[2] (#) alongside their images to broaden the reach of their photos and gain followers, likes and comments.

The nature of communications on Facebook and Instagram are fundamentally different; while images often accompany text-based communications on Facebook, images are the central medium of communication on Instagram. With the use of image-centric apps such as Instagram and Snapchat (a self-erasing photo and video sharing app), photos and videos have become "key social currencies online" (Rainie et al., 2012). Naturally, users are

[2] A 'hashtag' is a word or combination of words preceded by the (#) used to link posts of a particular topic on and across social media platforms

prone to being selective in their self-presentation, resulting in a “highlight reel” of #livingmybestlife (Wiederhold, 2018). Instagram is an ideal site for maintaining self-presentation to the extent that some users employ ‘Rinsta’ and ‘Finsta’ accounts to selectively disseminate content. Rinsta are real Instagram accounts with carefully chosen content that is flattering and presented to a broad audience, whereas Finsta are fake accounts where users post potentially unflattering content [struggles, embarrassments, imperfections] to a select audience of intimate friends (Kang & Wei, 2018). With content crafted for self-presentation, an increase in image exposure also equates to an increase in everyday exposure to retouched and idealised images.

We now understand that viewing manipulated Instagram images results in significantly lower body satisfaction than the same images unretouched (Kleemans, Daalmans, Carbaat, & Anschütz, 2018). Notably, that study also suggested that adolescent girls are poor identifiers of body reshaping, and generally expressed that manipulated images were representative of reality (Kleemans et al., 2018). This suggests that users may not always be aware of the retouched nature of the images they view and may therefore unknowingly compare themselves with unrealistic and idealised representations of others. Although it could be inferred that orienting users to image manipulation might be helpful, in the same way that text warnings in traditional media do not reduce negative effects on self-perception (Borges, 2011; Tiggemann et al., 2014), disclaimer comments on idealised Instagram images appear to be just as ineffective (Fardouly & Holland, 2018). Fardouly and Holland (2018) found that idealised Instagram images with or without disclaimer comments resulted in higher body dissatisfaction than control (travel-related) images. Crafting edited content appears to also be detrimental, with greater engagement in digital selfie alteration and photo investment related to greater body dissatisfaction (Lonergan et al., 2019; McLean, Paxton, Wertheim, & Masters, 2015).

The users posting or featuring in Instagram images are also potentially closer in relational proximity to the viewer (friends, peers, similar targets of comparison) than the models featured in traditional media. According to Cash et al. (1983) this proximity would amplify their influence, in line with the importance of peers conveyed in social comparison theory (Festinger, 1954). Although model and celebrity images are generally critiqued as being potentially problematic for impacting viewers' body image, Instagram images from celebrities and unknown peers are shown to be similarly detrimental to mood and body image (Brown & Tiggemann, 2016). While this finding does not fully align with Cash et al.'s suggestion that peers would be the most influential targets, it does show that peer impact is at least on par with that of celebrities, suggesting that images from attractive fellow-users can be just as harmful as idealised images depicting the glamorous and unattainable lives of well-known individuals such as Kim Kardashian or Taylor Swift. Further clarifying the effects of peers on social media, Hogue and Mills (2019) examined the effects of engaging with Instagram and Facebook sites from specific close-proximity targets: known peers compared to non-peer (at least 5 years older or younger than the participant) family members. Among female participants, active social media engagement with an attractive known peer on social media resulted in increased negative body image, while no such effect was found when engaging with a family member. This suggests that even when the peer is known to the user, engaging with peer content still has detrimental effects on body image (Hogue & Mills, 2019).

Taken together, the curated nature of Instagram results in a collection of images displaying the very best aspects of a user's life, made even better through image editing. Viewing manipulated images results in greater body dissatisfaction than the same images unretouched (Kleemans et al., 2018). Moreover, these images may come from peers, which carry a similarly detrimental effect as images from celebrities (Brown & Tiggemann, 2016);

and result in reduced body image even when the peer is known to the user (Hogue & Mills, 2019). Image-editing on Instagram therefore creates an ideal environment to facilitate greater body dissatisfaction.

1.6.2 The Instagram 'Influencer'

When examining proximity of comparison targets, it may also be important to consider the varying relationship types encountered on Instagram. On other social networking sites, such as Facebook and Twitter, two key forms of relationships have been defined: reciprocal social relationships - where users mutually follow/friend and communicate with each other; and parasocial relationships – unidirectional social networking relationships – for example, relationships with celebrities; the user follows the celebrity, while the celebrity is not aware of the user's activities (Baek, Bae, & Jang, 2013). Parasocial social networking relationships are positively related to loneliness and online interpersonal distrust, while the same variables are negatively related to reciprocal social networking relationships (Baek et al., 2013), though for Instagram users, parasocial relationships are associated with a sense of community (Blight, Ruppel, & Schoenbauer, 2017). Social media may add a reciprocal illusion to a parasocial relationship, with selective replies from the celebrity to the user. Researchers analysing celebrity Twitter activity found that celebrities read and selectively reply to, or 'retweet' Twitter messages from their fans, making the relationship between the celebrity and user seem more 'real' (Stever & Lawson, 2013), despite the parasocial relationship still lacking the characteristics of a reciprocal social relationship. We believe that selective replies or 'retweets' act to reinforce the fan's relationship with the celebrity, with the occasional interaction acting as the reinforcer on a variable ratio schedule of reinforcement (Ferster & Skinner, 1957). The fan may continue to publicly acknowledge the celebrity through social media, in the hope that the celebrity might once again respond. With the variable ratio schedule widely considered the most resistant to extinction, this creates a

paradigm whereby minimal interaction from the celebrity can establish longstanding following and engagement among fans on social media.

The targets of parasocial and reciprocal social relationships are commonly divided into celebrities and 'others' (others being those we can have a reciprocal relationship with, such as friends or acquaintances). While these divisions can be reliably identified on forms of social media like Twitter and Facebook, the profile of users on Instagram appears to be more complex. Like other social media platforms, on Instagram one can follow celebrities (a subgroup that might be likened to the professional models examined in Cash et al.'s (1983), research), or friends/peers (personal ties with those who follow back, forming a reciprocal bond). However, a third group is also found on Instagram: 'influencers'.

Influencers are users who are 'normal', everyday people that gain a celebrity-like following due to the quality content they produce and the authenticity they portray. Some maintain this status, while others use it as a platform to garner actual celebrity status - sometimes commercialising the feature that facilitated their 'Insta-fame' (e.g., Kayla Itsines' 'Bikini Body Guide' and 'Sweat' app). Exposure to influencers on social media results in users experiencing envy via the social comparisons they make with influencers (Chae, 2018). Examining interactions on Instagram, it seems that users in this subgroup communicate more frequently with their followers, however, like a celebrity, they may not follow-back. Therefore, regular users may compare themselves with influencers just as they would any other peer, however the relationship they hold with this target could be defined as a parasocial relationship due to its predominantly single-sided nature. Hence, influencers appear to occupy the space between peer and celebrity. Little is currently understood about this group. But it seems their refined content, combined with their peer-like authenticity and relatability, present users with the optimal conditions to engage in social comparison with idealised content.

1.6.3 Selfie Culture

Alongside the emergence of image-based social media platforms such as Instagram, the 'selfie' has arisen. 'Selfie' is a term used to describe a digital self-portrait, or photograph taken of the subject, by the subject – often by extending their arm to operate a camera or phone-camera and capture the shot (Souza et al., 2015). Users take selfies for self-approval, belonging and documentation (Etgar & Amichai-Hamburger, 2017), but, despite their self-focused nature, they may not necessarily be indicative of Narcissism (Barry, Reiter, Anderson, Schoessler, & Sidoti, 2019). Research has shown that selfies on Instagram generate approximately 1-3 times more likes and comments than other content (Souza et al., 2015). McLean, Paxton, Wertheim, and Masters (2015) found that girls who regularly posted selfies had significantly higher levels of body dissatisfaction, internalisation of the thin-ideal and overvaluation of shape and weight than girls who did not post selfies. This may be attributed to the appearance-focused nature of sharing selfies, and the provocation of comparison and self-scrutiny. Feeling anxious, less confident, and less physically attractive is associated with posting unretouched selfies and is not mitigated by users' ability to retake and retouch their selfies, suggesting little immediate psychological benefit of being able to perfect images prior to posting (Mills, Musto, Williams, & Tiggemann, 2018). Despite their popularity on Instagram, posting selfies appears to be detrimental to users in a number of ways.

1.6.4 Feedback on Instagram

Responses in an interview study suggest that users post selfies with the goal to get 'likes' (Chua & Chang, 2016). Instagram 'likes' serve to directly acknowledge beauty, status, and approval, and are considered more valuable than qualitative feedback (comments) (Chua & Chang, 2016). Failure to achieve an expected number of 'likes' can result in low self-worth and feelings of inadequacy (Chua & Chang, 2016). The effects of viewing images of females

with low compared to high numbers of likes appears to be more complex. Tiggemann, Hayden, Brown, and Veldhuis (2018) found that viewing highly liked images resulted in lower facial dissatisfaction; however, there was no effect of likes (low ([1-10] compared to high [100-300]) on body dissatisfaction. Tiggemann et al. (2018) speculated that this positive effect on facial dissatisfaction may be a result of the sense of online support communicated by high likes. Interestingly, the same study found that women who were more invested in likes showed more appearance comparison, likes comparison, and facial dissatisfaction; nevertheless likes-investment did not moderate the effect of likes on body or facial dissatisfaction (Tiggemann et al., 2018).

Although feedback in the form of likes may be seen as more valuable, observing qualitative feedback also appears to amplify the negative consequences of viewing images on Instagram (Tiggemann & Barbato, 2018). Full-body photos of females situated in travel landscapes were presented to one group alongside positive appearance-related comments (e.g. “you look amazing”), and to a second group alongside positive comments about the background location (e.g. Venice looks amazing”) (Tiggemann & Barbato, 2018). Results showed increased body dissatisfaction after image exposure across both conditions, with a greater increase for those viewing the appearance comments than the travel comments. These findings suggest that, despite being positive, and therefore seemingly helpful to the person posting (by complimenting their appearance), viewing positive appearance related comments may reinforce appearance ideals and increase viewers’ body dissatisfaction (Tiggemann & Barbato, 2018).

1.6.5 Idealised Content and Evolving Expectations: The ‘Fit Ideal’

Along with changes to who is portrayed in the media images we are exposed to (that is, the shift towards images of family, friends, and neighbours on social media, as opposed to images solely portraying models and celebrities), the societal expectations of appearance

appear to be evolving. A ‘fit ideal’, whereby the valued feminine body is thin, fit, and toned (somewhat muscular), is appearing more frequently within the media and attracting increased attention (Boepple, Ata, Rum, & Thompson, 2016; Robinson et al., 2017; Tiggemann & Zaccardo, 2015). This results in a dual-dimensional standard for attractiveness that is even harder for the average woman to achieve, and could prove problematic for those vulnerable to body image issues (Benton & Karazsia, 2015). In an analysis of healthy living blogs, Boepple and Thompson (2014) discovered that popular blogs designed to encourage physical and mental health emphasised appearance, thin ideals, and disordered messages about nutrition. Similarly, ‘fitspiration’-specific websites emphasise idealised (thin and attractive) female bodies (Boepple et al., 2016). This demonstrates a trend in written and image based online media whereby being fit comes with insidious undertones of being thin for women. Homan, McHugh, Wells, Watson, and King (2012) examined the effect of the fit-ideal on women’s body image. Women exposed to images of thin ultra-fit (visibly fit, muscular, and toned) models experienced increased body dissatisfaction; however, exposure to normal weight ultra-fit models did not produce the same effect. Benton and Karazsia (2015) extended this research, finding that there were limits to the level of muscularity that influenced participants’ body dissatisfaction. The body satisfaction of 366 participants was measured pre- and post-exposure to images from one of four categories: thin; thin and muscular; thin and extremely muscular; or control (no body depicted). All images were of comparable thinness however body satisfaction was only decreased after viewing images from the thin, and thin and muscular categories. Together these studies demonstrate the consistent importance of images of thinness in influencing body satisfaction. Even with a broader standard for attractiveness that now emphasises fitness, thinness is a driving force influencing body dissatisfaction, and with too extreme a deviation from standard thinness the effect on body dissatisfaction diminishes.

The progression from the ‘thin-ideal’ to the new ‘fit-ideal’ has evolved alongside social media and, as such, this ideal has translated to the images found on social media. Research has particularly examined the manifestation of the fit-ideal on image-based social media. The term ‘fitspiration’ is garnering increased attention; an amalgamation of the words ‘fitness’ and ‘inspiration’ used to describe images that encourage a healthy lifestyle, consistent with the contemporary fit-ideal. This term also finds its roots in the longer established descriptor, ‘thinspiration’, denoting media (often images) designed to inspire girls who aim to lose weight or maintain an anorexic or bulimic lifestyle.

Fitspiration images often portray women exercising, sometimes accompanied by motivational text. The hashtag ‘#fitspo’ currently retrieves over 66 million posts on Instagram alone (June, 2019). However, consistent with the fit-ideal, while depicting bodies as being toned or strong, fitness images are often distinctly ‘skinny’ and might not differ substantially from images epitomising beauty and fashion (Wasylkiw, Emms, Meuse, & Poirier, 2009). Some argue that fitspiration images are merely “thinspiration with the façade of a healthy lifestyle thrown in” (Abena, 2013) – therefore communicating the message that a thin (whilst also toned) body is the only body type of value. This assertion is supported by recent research that analysed and compared fitspiration and thinspiration websites (Boepple & Thompson, 2016). The analysis showed that fitspiration and thinspiration websites did not differ with regard to messages about dieting and restraint, objectifying phrases, stigmatisation of fat and weight, and guilt inducing messages about weight or the body. Likewise, one analysis of #fitspiration on Instagram classified 88% of the examined images as thin or with low body fat, and 56% as muscular (Deighton-Smith & Bell, 2018), once again demonstrating that thinness is an essential defining characteristic of all categories of idealised imagery.

Like thin-ideal media, engaging with fitspiration appears to be linked with some negative consequences. Users who post fitspiration on Instagram, compared with users who post travel images, score significantly higher on drive for thinness, bulimia, drive for muscularity, and compulsive exercise (Holland & Tiggemann, 2017). Exposure to fitspiration images also results in increased negative mood and body dissatisfaction, and decreased appearance self-esteem relative to viewing travel images (Tiggemann & Zaccardo, 2015). Increased body dissatisfaction and negative mood occurs regardless of whether the fit-ideal images depict functional (performing exercise) or non-functional (posed) bodies (Prichard, McLachlan, Lavis, & Tiggemann, 2018). Furthermore, viewing athletic-ideal (thin and toned physique, i.e. fit-ideal) images results in greater body dissatisfaction than exposure to traditional thin-ideal images, while both athletic and thin-ideal images produce more negative effects on body dissatisfaction than muscular ideal images (Robinson et al., 2017).

Compared to viewing fitspiration images alone, viewing fitspiration alongside self-compassion quotes (e.g. “Be kind to yourself”) results in higher body satisfaction, body appreciation, and self-compassion, and less negative mood (Slater, Varsani, & Diedrichs, 2017). Research has also begun to examine the effect of viewing fitspiration images on males. Frequency of viewing this content was not significantly related to body satisfaction, appearance-based exercise motivation, or health-based exercise motivation for males; however, viewing fitspiration was associated with greater internalisation of muscular ideals, and increased appearance comparisons, and related to body dissatisfaction via these mechanisms (Fatt, Fardouly, & Rapee, 2019).

Thin-ideal and fit-ideal imagery creates a dual-dimensional standard of attractiveness; however, thinness appears to be a characteristic underlying both of these ideals for females (Deighton-Smith & Bell, 2018). The key difference is likely found in how easily these categories are identified as being maladaptive. While thin-ideal imagery is widely

acknowledged as being detrimental, the healthful façade of fit-ideal imagery means that it may not be immediately identified as being harmful to the viewer. This means that even though the ideal appears to be evolving, the fit-ideal which features prominently on Instagram still communicates the value of thinness. Moreover, this is conveyed in a healthy and relatable way. Therefore, even with new categories (and hashtags) of imagery emerging, the idealised woman on Instagram is still thin and attractive - and now fit and visibly toned too - which appears to be detrimental for the viewer (Prichard et al., 2018; Robinson et al., 2017; Tiggemann & Zaccardo, 2015).

1.6.6 Instagram Summary

Although there is still substantially less research focusing on Instagram compared to other platforms like Facebook, Instagram appears to be rapidly defining its status as the most detrimental social media platform for health and wellbeing (Wiederhold, 2018). Users potentially engage with a broader array of images posted by 'peers' – a key target for comparisons (Festinger, 1954); images are likely to be chosen and retouched as tools for selective self-presentation; users are likely to view content from individuals that fall into the little-understood 'influencer' sphere - strangers who are relatable peers, whilst simultaneously unattainable akin to a celebrity; and are likely to view idealised content that emphasises both thin- and fit-ideals. Moreover, a recent study found that one third of participants indicated some degree of addiction to Instagram (Kircaburun & Griffiths, 2018). Taken together, Instagram has a wealth of features that facilitate comparison and the body dissatisfaction that often ensues. Further research of this platform and its complexities is thus warranted.

1.7 What About the Other Image-Based Social Media Platforms?

The evidence brought together in this commentary suggests that image-based social media is uniquely situated to influence the body dissatisfaction of users, due to the

fundamentally different ways image-based platforms encourage people to communicate through images (Manikonda, Hu, & Kambhampati, 2014). Although Instagram is not the only image-based social media platform (e.g., Snapchat, Pinterest), we argue it is the most likely to influence users' body dissatisfaction because of the perfected presentation of images that reflect a user's life and identity. Snapchat images and videos have been characterised as mundane snippets of everyday life – a "window into each other's daily lives" (Bayer, Ellison, Schoenebeck, & Falk, 2016). On Snapchat, users most often share selfies, often embellished with added text and 'doodles' (Piwek & Joinson, 2016). Therefore, the spontaneous and communicative self-erasing images on Snapchat are less 'polished' and lack the editing and careful curation characterising images on Instagram. On Pinterest the images pinned on a user's board are predominantly not the users' own images, or images of the user – rather they are images found on blogs or other webpages on the Internet (Hall & Zarro, 2012). Pinterest images are more likely to reflect what the user finds appealing, rather than reflecting their life. Where images of individuals are found, they are in isolation. In contrast, images on Instagram are posted or tagged to a profile that allows the viewer to piece together the subject's identity and judge the images as realistic. Therefore we see Instagram as uniquely situated among these platforms to influence users' body dissatisfaction.

1.8 An Agenda for Research

Although media images are changing in volume and nature, the influence of these images on body dissatisfaction may also be linked to their means of presentation. We highlight both the potential importance and lack of Instagram research. The unique characteristics of this platform and its content create an environment for comparisons that adversely affect body satisfaction. Further study of this platform is necessary to increase our knowledge of the role of new forms of media in influencing self-evaluations and body image. The mechanisms by which Instagram influences its audience also warrant investigation. It is

unclear whether Instagram influences individuals through its presentation of images, by the nature of the images characteristically found on this platform, or by the nature of the people posting the images.

We distilled two central themes to address within this thesis. Firstly, we identified the need for greater understanding of the key image-based behaviours users engage in on social media, with a focus on self-presentation; and secondly, we provided an initial examination of the role of 'influencers' in the effects of Instagram use, while exploring the influence of viewing Instagram images on psychological outcomes. The following chapters are presented in two parts, aligning with these two central themes. In Part One (Chapters Two and Three), we firstly identified three key image-based behaviours that are present on social media: image-editing, posting, and 'liking'. Given the curated nature of images on social media, we chose to examine each of these behaviours with the aim of understanding how self-presentation is present in users' actions on social media. We maintained a broad approach in these studies, either examining social media in general, or investigating the most popular and well-researched platform, Facebook. The broad approach of these studies allowed us to draw conclusions about social media more generally, which informed our focused examination of Instagram in Part Two.

Of fundamental importance, a key feature built into Instagram is the ability to filter, edit, and enhance photographs. Use of filters is an example of a normative like-seeking behaviour (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017). Thus, the images people view of their peers are potentially adjusted to perfection. This culture of selective self-presentation and editing may mean the peers individuals are using as preferable comparison targets present just as unattainable standard of appearance as models within traditional media – however potentially more influential due to their proximity to the viewer, and the misperception that they reflect reality. Therefore, the effects of filters and photo editing on

body dissatisfaction and other forms of self-evaluation warrant further investigation. Comparisons between edited images within traditional media (for example, images of professional models) and Instagram app filtered images of peers would provide insight into the effects of everyday editing and how it compares to professionally edited images. We also understand that it is not just viewing altered images, but engagement in image alteration that can be related to greater body dissatisfaction (Lonergan et al., 2019). Thus, it is also essential to understand this behaviour more thoroughly by examining the factors that contribute to users' likelihood to edit their own images. One prominent theory for predicting behaviour is the Theory of Planned behaviour, in which attitudes, subjective norms, and perceived behavioural control are seen to shape and individual's behavioural intentions, and in turn, their behaviour (Ajzen, 1991). As such, Part One, Chapter Two details the first study to apply a theoretical framework (the Theory of Planned Behaviour) to investigate the factors that influence Facebook users' intentions to post digitally altered self-images on Facebook. Extending our analysis of key image-based behaviours, Part One, Chapter Three uses thematic analysis to explore the considerations social media users have prior to posting and 'liking' image-based content on social networking sites. Here we were particularly interested to see *if* and *how* self-presentation is manifested in these behaviours.

In Part Two, Chapter Four, we build on our understanding of the stress that may be associated with Instagram use (Chapter Three) to define 'Instagram Investment'. A set of items are developed to operationalise users' investment in the content they post and the response they receive from their audience. The value of Instagram Investment as a mechanism for influencing the effect of Instagram on wellbeing is subsequently examined. Directly progressing from the definition and operationalisation of Instagram Investment, Part Two, Chapter Five explores the personality predictors of Instagram Investment, to develop a

profile of the characteristics of users who may be vulnerable to developing a deep emotional investment in their Instagram use.

Finally, the 'influencer' subgroup of Instagram users presents a new and relatively unknown phenomenon. It is recommended the concept of the 'influencer' be studied, and its characteristics defined and compared to the more traditional peer vs. celebrity dynamic found on other social media. Existing literature has found that celebrity Instagram images and peer Instagram images are similarly detrimental to mood and body image (Brown & Tiggemann, 2016). Influencers blur the line between these two groups and the impact of their status on the viewer is currently unknown. Extending the work of Brown and Tiggemann (2016), Part Two, Chapter Six sought to address this gap in the literature by performing the first experimental study to examine the effect of 'influencer' status on female viewers' mood, body dissatisfaction, and self-esteem by manipulating 'likes' and 'follow' statistics.

In Chapter Seven the findings from each of the thesis chapters are summarised and integrated. Here we also discuss limitations, explain the implications of this research, and suggest directions for future research.

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PART 1.

Chapter 2, Paper 1:

Self-ie Love: Predictors of Image Editing Intentions on Facebook

Emily Lowe-Calverley and Rachel Grieve

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2.1 Copyright Statement

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Emily Lowe-Calverley 28 June 2019

2.2 Abstract

Little research has examined image-editing behaviour on social media, yet with images being a key form of online social communication, the importance of such research is evident. The aim of the current study was to examine the factors that influence peoples' intentions to post digitally altered self-images on the Facebook platform, using an extended Theory of Planned Behaviour (TPB) model. It was hypothesised that after controlling for age, prior editing application use, and integration of Facebook in a user's life, the TPB variables (attitudes, subjective norms, and perceived behavioural control [PBC]) would explain a significant proportion of intention to post digitally altered images on Facebook. Furthermore, that the addition of narcissism would explain further variation in intentions, beyond that explained by the control and TPB variables. Participants (N =151; M_{age}= 25.6 years; 76% female) completed an online survey assessing each of the aforementioned variables. Hierarchical multiple regression revealed that each of the hypotheses were supported, with all variables significantly contributing to the prediction of intentions, except PBC and age. This study sheds light on the predictors of image-editing behaviour, and sets the stage for subsequent research examining editing behaviours on Facebook as well as other social media platforms (e.g. Instagram).

Keywords: Facebook, image editing, selfie, social media, Theory of Planned Behaviour, Narcissism

2.3 Introduction

Social networking sites (SNS) are thoroughly embedded in our daily routines, providing us with environments that facilitate communication, organisation, self-presentation, and relationship building. Prior research has suggested that enjoyment and usefulness are key factors in the continued use of SNS (Lin & Lu, 2011), helping users meet their personal and social needs. Use of Facebook, the leading SNS, can compensate for weak social skills (Teppers, Luyckx, Klimstra, & Goossens, 2014), enable relationship formation and maintenance (Joinson, 2008; Tosun, 2012; Yang & Brown, 2013), pass time and overcome boredom (Sheldon, 2008), provide information about people met in offline contexts (Lampe, Ellison, & Steinfield, 2006), and, most relevant for the current research, provide the opportunity for self-presentation and impression management (Grieve & Watkinson, 2016; Nadkarni & Hofmann, 2012; Sung, Lee, Kim, & Choi, 2016; Zhao, Grasmuck, & Martin, 2008). Presenting a positive image through ones' profile picture is becoming increasingly easy with new technology. Notably, mobile devices now offer in-built features and applications that allow users to readily digitally alter ('edit') elements of images prior to sharing. The use of these applications and resultant image-editing behaviour presents a new domain for cyberpsychology research. Currently, scarce research examines image editing. The aim of the current study was to therefore shed light on the predictors of self-image editing with a view to elucidating this little-known behaviour and opening the path for future enquiry into image editing.

Research into digitally altered images in traditional media (advertisements) found that girls under the age of twenty, exposed to digitally altered photos reported lower self-esteem, social assurance, and an increased desire to change their physical appearance than those exposed to unaltered images (Borges, 2011). Preliminary evidence looking at the act of editing rather than viewing edited images suggests that photo investment (effort and concern

related to image choice/sharing) and image manipulation may also contribute to body-related and eating concerns (McLean, Paxton, Wertheim, & Masters, 2015). Medium to large effect sizes were found for the relationships between image manipulation and photo investment, and body related and eating concerns; these effects were shown to be of a greater magnitude than those previously found in relation to Facebook photo activities and eating and body-related variables. Importantly, this finding highlights that detrimental effects may be found from posting and not just viewing edited images, as has been established in research looking at traditional media in the past (Borges, 2011). However, little is known about image-editing behaviour itself, therefore the need for research clarifying the factors that influence image-editing behaviour is evident.

Facebook users can manage their self-presentation through their posts and profiles, consisting primarily of text or images. Images, particularly images of the user (self-photos, or 'selfies'), are especially crucial for self-presentation. One study of school-aged adolescents found that 18.1% of girls and 15.2% of boys clicked more than four selfies per day, with 10.9% of these participants reportedly editing their selfies "very often" to make them look more appealing (Dutta et al., 2016). Motivations for sharing self-images include attention seeking, defined as the desire to attract attention and show off; to gain self-confidence, acknowledgement, and affirmation through others' reactions; and to attract potential partners (Sung et al., 2016). Secondary motivations include communication, archiving, and entertainment (Sung et al., 2016). Given these motivations and the apparent importance that users perceive self-images have in social transactions, it is not surprising that users are selective and strategic, ensuring their images represent the best version of themselves. In line with this strategic behaviour, research suggests that individuals engage in selfie-editing as a means of fulfilling their desire for ideal online self-presentation (Chae, 2017).

Selective self-presentation online is seen more prominently among narcissistic individuals (Kapidzic, 2013). Narcissism is characterised by grandiosity, superiority and dominance (Raskin & Terry, 1988). Among a number of constructs, Narcissism is associated with self-enhancement of attractiveness, likeability, intelligence, and task performance (Grijalva & Zhang, 2015). That is, narcissists overinflate their standing on certain characteristics, beyond the level that others may objectively identify – in sum indicating an extremely high opinion of themselves. With such a focus on the self, it is no surprise that narcissists strive more than others to present their most positive qualities in profile pictures, selecting images that emphasise their attractiveness and personality (Kapidzic, 2013).

Narcissism seems to be a key factor in the prediction of image-editing behaviour. Grandiose narcissism has been associated with self-promotion through photos (Mehdizadeh, 2010), self-presentation motives, taking and posting more selfies, positive affect when taking selfies (McCain et al., 2016), and higher likelihood of evaluating selfie posting behaviour favourably (Lee & Sung, 2016). Further research has shown that among males, trait self-objectification and narcissism are significant predictors of photo editing behaviours (Fox & Rooney, 2015). The link between narcissism and investment in self-images follows given the self-focussed nature of narcissists. Interestingly it has been suggested that a self-reinforcement effect occurs whereby narcissists produce more self-images, while the production of self-images reinforces and raises levels of subsequent narcissism (Halpern, Valenzuela, & Katz, 2016). Those authors suggest that selfie taking may increase the levels of narcissism in narcissists, and speculate beyond their data that it may even induce narcissism among those who initially lack it. This is argued to be a product of the self-promoting and superficial behaviours encouraged through photo posting and editing (Halpern et al., 2016). While narcissism appears to play a key role in image related behaviour, there is still variance that remains unexplained. Therefore further investigation examining image

related behaviours that examines different possible predictors, as well as accounting for the possible influence of narcissism, is warranted. The little existing research on selfie taking and image editing also remains atheoretical, therefore applying an explanatory theory may help to provide a different perspective and more thoroughly unpack the mechanisms that influence this kind of online behaviour.

2.3.1 The Theory of Planned Behaviour Model

Ajzen's (1991) Theory of Planned Behaviour (TPB) is a prominent decision-making model that considers the impact of personal and social factors in determining human social behaviour. Within the TPB framework, behaviours are influenced most by ones' intentions to engage in that behaviour; while attitudes toward the behaviour, subjective norms regarding the behaviour, and perceived behavioural control (PBC) over the behaviour are believed to predict these intentions with a high degree of accuracy (Ajzen, 1991). The three TPB antecedents all refer to various perceptions the individual has about the behaviour in question. Perceived behavioural control refers to an individual's perception of the difficulty or ease of performing a particular behaviour. Attitude refers to an individual's positive or negative evaluation of a particular behaviour (Ajzen, 1991). Subjective norms are the perceived expectations from others that influence an individual's likelihood of performing a particular behaviour. Where attitudes and subjective norms toward the behaviour are perceived to be more favourable, and perceived behavioural control is greater, the individual's intention to perform the behaviour will be stronger (Ajzen, 1991). The efficacy of the TPB is well established (Armitage & Conner, 2001) with TPB variables consistently found to predict intentions and behaviours related to Facebook use, for example partner-monitoring (Darvell, Walsh, & White, 2011) and selfie posting behaviour (Kim, Lee, Sung, & Choi, 2016). Thus, this theory may help to explain the mechanisms underpinning intentions to edit images prior to posting those images on Facebook.

2.3.2 The Current Study

The aim of the current study was to investigate the factors that influence Facebook users' intentions to post digitally altered self-images on the Facebook platform. Behaviour can be influenced both by individual subjectivity, and by the social world. Therefore, we chose to take a combined psychosocial approach to our investigation, and in doing so, examine the social factors and personality variables that may influence intentions to post edited self-images on Facebook. To achieve this goal, the TPB was used as a theoretical framework to explain the social aspects of the behaviour. Given the established links between narcissism and image related behaviours, the research further tested the inclusion of Narcissism as an extension of the TPB accounting for individual differences.

Previous research has highlighted the role of narcissism in 'selfie' behaviour (Charoensukmongkol, 2016; Halpern et al., 2016). Of particular note is the control a narcissist can experience over every aspect of the picture and what the audience sees, therefore allowing for complete power over their self-presentation (Charoensukmongkol, 2016). This 'control', characteristic of general selfie behaviour, may indicate a high level of perceived behavioural control associated with the specific selfie-editing behaviour we are examining in the current study. Further, by using the extended TPB model to look at both the social and individual difference factors that influence intentions to post digitally altered self-images, based on this common theme of control, we may reveal shared variance between narcissism and perceived behavioural control.

It is important to also control for factors that may already account for image-editing behaviours, in order to more clearly understand the contribution of the TPB and narcissism. To do so, age, previous editing application use, and Facebook Intensity were included as control variables. It is possible that image-editing behaviour may differ among younger and older age groups. Recent research has shown age related differences in privacy management

behaviours on Facebook (Kezer, Sevi, Cemalcilar, & Baruh, 2016). Therefore, it is possible that age related differences would also be found among different aspects of Facebook use, such as image editing behaviour. Other factors that may impact editing intentions are past experience using editing applications and Facebook intensity; a measure of a user's emotional and life-based connectedness to Facebook (Ellison, Steinfield, & Lampe, 2007). Past behaviour is acknowledged to play a significant role in the prediction of future behaviours. Where behaviours become habitual, intentions tend to become automatic. For more conscious deliberation, past behaviour informs intentions, which then determine behaviour (Ouellette & Wood, 1998). Therefore, we predict that any past editing experience will influence intentions to edit self-images again in the future, and should be controlled for in the present study. Previous research has shown that selfie-liking is associated with more general intensity of social media use (Charoensukmongkol, 2016). We are specifically examining Facebook and there anticipate that Facebook Intensity will be related to image editing intentions. A high intensity of connectedness to Facebook may indicate greater use of the platform and a desire to maintain one's Facebook profile. A key part of a Facebook profile is the profile picture, therefore it would follow that the user high in Facebook Intensity may consider image editing as a means of profile maintenance to enhance their appearance. Previous research has shown moderate links between Facebook Intensity and friendship contingent self-esteem (Pettijohn II, LaPiene, Pettijohn, & Horting, 2012). The same study found that Facebook Intensity was not associated with narcissism, suggesting that including Facebook Intensity as a control variable may explain further aspects of image editing intentions that stand apart from the contribution of narcissism. As Facebook Intensity and editing application use represent depth of experience with image editing and the Facebook platform, it was anticipated that they would influence image-editing behaviour on Facebook, thus their inclusion as control variables was indicated.

It was hypothesised that after controlling for age, previous editing application use, and Facebook Intensity, the TPB variables attitude, PBC, and subjective norms would explain a significant proportion of the variance in intentions to post digitally altered images of oneself on Facebook. In addition, it was predicted that the inclusion of narcissism would contribute to the prediction of intentions beyond that which is explained by the control and TPB variables, such that the more narcissistic an individual is, the greater their intentions to post digitally altered images of themselves online.

2.4 Method

2.4.1 Participants

The participants were recruited using posters and social media posts[3], with an invitation open to adult individuals with experience using Facebook. There were no other selection criteria. The sample comprised 151 Australian participants (115 female, 36 male) who identified as Facebook users. The age of participants ranged from 17 to 66 years (M_{age}= 25.6 years; SD = 10.6).

2.4.2 Design and Procedure

The study was correlational[4]. A hierarchical multiple regression analysis was used to allow for shared variance between the predictors. Control variables (age, editing application use, and Facebook intensity) were entered at Step 1; The TPB variables (attitude, subjective norms, and PBC), at Step 2; and narcissism, at Step 3. Intention to edit images on Facebook was the outcome variable.

An anonymous online questionnaire comprised control measures of Facebook Intensity and editing application use, TPB items, and a measure of Narcissism. Participants

[3] Posters were situated around the university campus and social media advertisements were posted on Facebook.
[4] This study was approved by the Social Sciences Human Research Ethics Committee.

were invited to follow a link to Survey Monkey, where they provided informed consent and subsequently completed the questionnaire.

2.4.3 Measures

2.4.3.1 Editing Application Use. Three dichotomous (*yes/no*) items assessed prior image-editing behaviour. Items were 'Do you use the filters and editing capabilities built into your mobile phone to edit images before taking them to a social media platform to upload?', 'Do you use additional apps (e.g. VSCOcam) to edit images before taking them to a social media platform to upload?', 'Do you use professional editing software (e.g. photoshop) to edit images before taking them to a social media platform to upload?'. The scores for the three dichotomous 'editing application use' items were summed to represent a total for prior editing application use.

2.4.3.2 Facebook Intensity. The 6 scale items from the Facebook Intensity scale (Ellison et al., 2007) were used to assess and control for the extent of emotional connectedness to Facebook, and Facebook's integration into the users' lives (e.g. 'I feel out of touch when I haven't logged onto Facebook for a while'). Participants responded to items on a 5 point scale from *1 = strongly disagree* to *5 = strongly agree*. The Facebook Intensity scale was reliable with an alpha coefficient of $\alpha = .85$.

2.4.3.3 TPB. Theory of Planned Behaviour items were designed to assess the standard TPB constructs of attitude, subjective norms, perceived behavioural control, and intention. TPB measures were designed using guidelines and recommendations as specified by Ajzen (1991, 2002).

2.4.3.3.1 Intention. One item assessed the strength of intention: 'I intend to post digitally altered images of myself on Facebook in the future', answered on a scale from *1 = strongly disagree* to *7 = strongly agree*. This single item lacked ambiguity, and demonstrated high face validity, which has been associated with higher item validity (Holden & Jackson,

1979). On this measure, a higher value indicated a greater intention to post digitally altered self-images in the future.

2.4.3.3.2 Attitude. As per Ajzen's (1991) recommendations, semantic differential scales were used in the measurement of attitudes. Semantic differential scales are easy to develop and commonly employed in the measurement of attitudes towards online activities (e.g., Darvell et al., 2011; Grieve, Padgett, & Moffitt, 2016). We developed items with a view to capturing both instrumental and experiential aspects of evaluation. Three items were chosen to measure participants' attitudes: 'To me, digitally altering photos of myself before posting them on Facebook is…', answered on separate semantic differential scales from *1 = good* to *5 = bad; 1 = interesting* to *5 = boring;* and *1 = pleasant* to *5 = unpleasant.* Items were reverse scored and summed so that higher scores indicated more favourable attitudes. The attitude scale was very reliable with an alpha coefficient of $\alpha = .91$.

2.4.3.3.3 Subjective Norms. In the measurement of subjective norms we sought to develop items that captured both injunctive and descriptive norms, in line with Ajzen's (2002) recommendations. Thus, questions were worded to ask participants to indicate whether others approve of the behaviour (i.e., injunctive norms), and whether important others perform the behaviour themselves (i.e., descriptive norms). Subjective norms were measured using 4 items: 'Most of my friends who use Facebook digitally alter images of themselves before posting them on Facebook', 'Most people who are important to me would approve of my digitally altering images of myself before posting them on Facebook', 'Those people who are important to me would want me to digitally alter images of myself before posting them on Facebook', and 'Most people who use Facebook digitally alter images of themselves before posting them', scored *1 = strongly disagree* to *7 = strongly agree.* Items were summed, with higher scores representing greater presence of subjective norms. The subjective norms scale had adequate reliability ($\alpha = .77$).

2.4.3.3.4 Perceived Behavioural Control. To measure perceived behavioural control we sought to assess two dimensions that capture self-efficacy: difficulty and likelihood of behaviour; as well as enquiring about the perceived controllability of behaviour (Ajzen, 2002). Perceived behavioural control was measured using 4 items: 'I am confident I could post digitally altered images of myself on Facebook', 'I have complete control over whether I post a digitally altered image of myself on Facebook', 'It would be easy for me to post digitally altered images of myself on Facebook', and 'It is up to me whether I post digitally altered images of myself on Facebook', scored from *1 = strongly disagree* to *7 = strongly agree,* with higher scores reflecting greater perceived behavioural control. Reliability was α = .71

2.4.3.4 Narcissism. Narcissism was measured using the Narcissism subscale from the Short Dark Triad (SD3) (Jones & Paulhus, 2014). The SD3 provides a brief, however reliable and valid measure of the Dark Triad Traits; with subscales each for Narcissism, Psychopathy and Machiavellianism. Jones and Paulhus (2014) found that the SD3 provides a full and complete measure of narcissism, operating in a manner comparable with longer measures of the construct, despite its relative brevity. The narcissism subscale demonstrates acceptable to good internal consistency (α = .71, Jones & Paulhus, 2014; α = .80, March, Grieve, Marrington, & Jonason, 2017), with items targeting leadership, exhibitionism, grandiosity and entitlement, (e.g., 'I know that I am special because everyone keeps telling me so'). The nine Narcissism items were scored on a 5-point scale: *1 = strongly disagree*; *2 = disagree; 3 = neutral (neither agree nor disagree)*; *4 = agree; 5 = strongly agree*, with a higher total score indicating higher levels of narcissism. The internal reliability for narcissism was α = .70.

2.5 Results

Means, standard deviations and correlations are shown in Table 2.1. Overall, participants reported a preference for editing programs that could be used on their mobile device: 55% of participants reported use of the filters and editing capabilities built into their mobile phone; 29.1% indicated use of additional applications; and 7.9% reported use of professional editing software to edit images before uploading them to a social media platform. The score for Facebook Intensity was comparable with previous findings (Steinfield, Ellison, & Lampe, 2008), indicating that overall individuals felt emotionally connected and deeply integrated with their Facebook use. As displayed in Table 2.1, attitudes and social norms were the strongest bivariate correlates of intentions to post digitally altered self-images on Facebook.

Table 2.1

Descriptive analysis for posting digitally altered images of oneself on Facebook

Variable	1	2	3	4	5	6	7	8	Mean	*SD*
1. Age	-								25.63	10.6
2. Editing Application	-.09	-							3.92	0.92
3. Facebook Intensity	-.09	.24***	-						21.32	5.29
4. Attitudes	-.15*	.46***	.17*	-					8.21	3.26
5. Subjective Norms	-.20**	.30***	.22**	.52***	-				13.84	5.06
6. PBC	.03	.10	.04	.28***	.37***	-			21.36	5.15
7. Narcissism	-.13	.12	.12	.23**	.09	.08	-		22.56	5.15
8. Intention	-.12	.49***	.31***	.75***	.65***	.32***	.27***	-	2.93	2.04

Note. *p<.05; **p<.01; ***p<.001; PBC = Perceived Behavioural Control

The Step 1 control variables, age, editing application use and Facebook Intensity, accounted for 27.8% (adjusted R^2 = .263) of the variance in intention to post digitally altered self-images on Facebook, $F(3,147) = 18.84$, $p<.001$, with all variables except for age contributing significantly to the model (See Table 2.2). Both editing application use and Facebook Intensity were positive predictors of intentions, such that the more previous experience individuals had using editing platforms, and the more heavily Facebook was ingrained in their lives, the more likely they were to intend to post digitally altered self-images on Facebook. In Step 2, the addition of attitudes, subjective norms, and PBC accounted for an additional 41.2% (adjusted R^2 = .677) of the variance in intentions, F_{change} (3,144) = 63.69, $p<.001$, with editing application use, Facebook Intensity, attitudes, and subjective norms, revealed as significant determinants. Again, editing application use and Facebook Intensity were positive predictors of intentions. As were attitudes and subjective norms, demonstrating that the more positively individuals and the important people around them view editing behaviour, the more likely they are to post digitally altered self-images on Facebook. The control and TPB variables explained 69% of the variance in intentions to post digitally altered images on Facebook, and this was a very large effect (Cohen, 1992), f^2 = 2.23. In Step 3, the addition of Narcissism contributed a small but statistically significant additional 1% (adjusted R^2 = .685) of the variance in intentions, F_{change} (1,143) = 4.78, p = .030. In the final model, editing application use, Facebook Intensity, attitudes, subjective norms, and Narcissism contributed significantly to the model. All significant individual predictors were positively related to intentions, with the inclusion of narcissism indicating that the more narcissistic an individual is, the more likely they are to post digitally altered self-images on Facebook. The final model explained 70% of the variance in intentions, a very large effect (Cohen, 1992), f^2 = 2.33.

Table 2.2

Hierarchical analysis of intentions to post digitally altered images of oneself on Facebook

	B_{Step} 1 (95% CI)		B_{Step} 2 (95% CI)		B_{Step} 3 (95% CI)	
Intention						
Step 1						
Age	-.01	(-.04, .02)	.01	(-.01, .03)	.01	(-.01, .03)
Editing Platform Use	.96***	(.65, 1.28)	.30*	(.07, .54)	.30*	(.07, .53)
Facebook Intensity	.08**	(.02, .13)	.05*	(.01, .08)	.04*	(.01, .08)
Step 2						
Attitudes			.31***	(.24, .38)	.29***	(.22, .37)
Subjective Norms			.13***	(.09, .18)	.14***	(.09, .18)
PBC			.02	(-.02, .06)	.01	(-.03, .05)
Step 3						
Narcissism					.04*	(.004, .08)
ΔR^2	.28		.41		.01	
ΔF	18.84***		63.69***		4.78*	
Adjusted R2	.26		.68		.69	
Model F	18.84***		53.32***		47.58***	

Note. *p<.05; **p<.01; ***p<.001

2.6 Discussion

As hypothesised, after controlling for age, editing application use, and Facebook Intensity (editing application use and Facebook Intensity significant predictors in their own right), the inclusion of the TPB variables (attitudes, subjective norms and PBC) significantly improved the models ability to predict intentions to post digitally altered images of the self on Facebook in the future. Also supporting our hypothesis, the inclusion of narcissism significantly improved the models ability to predict intentions beyond that of the TPB and control variables. Age and PBC were the only variables to not contribute significantly to the prediction of intentions.

Of the control variables, editing application use and Facebook Intensity consistently and largely contributed to the prediction of intentions to post digitally altered self-images to Facebook. Editing application use is, at its core, a measure of past experience or behaviour. Research has suggested that past behaviour guides our future responses and intentions

(Ouellette & Wood, 1998), therefore the substantial predictive value of editing application use aligns with our understanding of past and future behaviours. The contribution of Facebook Intensity also aligns with our understanding of the construct and previous research – those who are more integrated and emotionally connected with Facebook may be more likely in general to engage actively with the platform, and perhaps more specifically with image-based activity. It could also be argued that an individual who is deeply involved with their Facebook use may be more motivated to post better quality (therefore edited to perfection) content to their profile (Ellison et al., 2007).

Interestingly, age was not a predictor of intentions in any iteration of the model. This result could be interpreted in two main ways. Firstly, age may not be a predictor of intentions, with individuals both young and old using Facebook similarly and intending to edit their self-images to the same degree. This aligns with the aging user-base of Facebook, consisting primarily of users in their 20s, 30s, and 40s (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Alternatively, while this study sampled participants from a broad age range (17 to 66 years), the mean age was low (25.6 years). Therefore age effects may have been washed out due to a skew in the sample, such that fewer participants represented the top end of the age range. Further research should follow up this finding by sampling a larger quantity of older Facebook users.

In line with previous research (Kim et al., 2016) attitudes had the strongest association with intentions. Subjective norms was also a statistically significant individual predictor of intentions to post edited self-images on Facebook. ‘Social media’, as highlighted within its name, revolves around connection and communication with others. In line with the social nature of social media, experiencing a need to belong is a key factor that motivates Facebook use (Nadkarni & Hofmann, 2012). Feeling the need to belong is likely to influence users to engage in behaviour that leads to greater acceptance from others (Leary, Kelly,

Cottrell, & Schreindorfer, 2013). Therefore people may be more likely to act in ways that they believe others deem to be suitable. It follows that the behaviours that individuals engage in on Facebook would thus be heavily influenced by their perceptions of the approval of those who are important to them, as reflected in our findings, as they are driven to experience affiliation with others. The ongoing popularity of posting selfies on social media may have been seen as a behavioural implication associated with the role of subjective norms in guiding intentions – while Facebook users believe that posting edited selfies is generally positively received (particularly by those important to them) they will continue to engage in this online behaviour. This may be particularly true if Facebook users view selfie-posting as a behaviour that allows them to affiliate and belong with others.

While significantly correlated with intentions at the bivariate level, PBC was not a significant individual contributor to the prediction of intentions to post digitally altered self-images on Facebook within the model. The lack of contribution from PBC is a contrast to existing literature examining the TPB and narcissism in the prediction of selfie posting, where all TPB variables and narcissism were significant contributors (Kim et al., 2016). The lack of contribution from PBC may suggest that aspects of editing decision-making are unique from other image-based behaviours, perhaps as a product of the involved and controlling nature of this behaviour. The mean score of PBC was very high, suggesting that Facebook users feel like they have a great level of control over whether the images they post are edited or not. As users feel a sense of control over their editing, PBC may not factor prominently into intentions and decisions to edit – with more thought given to the factors that *do* tend to vary, their attitudes and subjective norms. There was also a small amount of shared variance between PBC and narcissism (as shown in Table 2.2), that may be explained by the conceptual links that both constructs share with the high level of control associated with the production of self-images. As previously mentioned, narcissism has been linked to selfie

related behaviour with researchers inferring that the narcissist uses selfies as a tool for exerting control over self-presentation (Charoensukmongkol, 2016).

High levels of PBC may also be present because image editing is a particularly active behaviour, whereby users go to additional effort to digitally alter or apply filters to their images before posting. This may be in contrast to general image posting behaviour, which requires less additional effort. That is, the individual simply chooses and uploads the chosen image/s to Facebook. Moreover, on Facebook a user can be completely uninvolved in image posting by being tagged in other peoples' images; thus experiencing less control over what is presented online. In this case an individual would only become aware of their presence in another user's image if they are tagged. When not tagged an individual can remain unaware of images that they appear in on Facebook – ultimately experiencing no control at all over the images being posted. Thus when editing an image, the individual experiences the highest level of control, both choosing and changing the image to become their ideal post. The possible differences between image editing and other image-based behaviours provide further justification for future research investigating this behaviour.

The addition of narcissism resulted in a small but significant improvement to the model. Given the nature of image-editing it is possible that some of the variance associated with narcissism was shared among the previously entered editing application use and attitudes, as all three variables would capture a positive view toward image enhancement - therefore minimising the improvement narcissism contributed to the model. Alone, narcissism presents as a relevant predictor of intentions to post digitally altered self-images on Facebook, with a moderate positive correlation between the two variables. The small improvement found through the addition of narcissism follows within the context of previous research suggesting that editing and photo related activities facilitate self-promoting and superficial behaviours (Halpern et al., 2016). It is also possible that narcissism is becoming a

more common personality trait (Twenge & Campbell, 2009) through image-based behaviour such as editing, on social media. The aforementioned 'spiral' whereby image-based activity encourages narcissism, which in turn encourages further image-based activity may be enabled by SNS such as Facebook and Instagram, where images are used to represent a person's identity and experiences, and thus their importance drives a desire for perfection. With social media such as Facebook increasing the opportunities for individuals to post digitally altered images and engage in image-based activity, there is the broader implication of a society becoming increasingly narcissistic. This may change perceptions of narcissism, with less perceiving it as a 'dark' trait given its prevalence. Further research should examine this spiral relationship for Facebook and determine whether it is relevant to other SNS platforms where editing is encouraged (e.g., Instagram).

2.6.1 Additional Considerations

Given that key motivations of Facebook use are self-presentation and a need to belong (Nadkarni & Hofmann, 2012), this study is based on the assumption that users are editing pictures of themselves to make them look more attractive – however it should also be considered that images might be edited for other reasons, for example, to look different or be creative (e.g. applying a monochrome/sepia filter on an image). It is therefore recommended that future research delineates the motivations behind image editing. Nonetheless, it could also be argued that presenting an edited image in order to appear different (or creative) is in itself a form of self-presentation. One might wish to appear artistic, clever, or identify as a 'hipster' by intentionally deviating from the norm and editing images in a quirky or unique manner.

It is both a strength and a limitation of the current study that we only considered image-editing on one social networking site, Facebook. By looking at one platform only, this minimised noise in the data, allowing us to draw sound conclusions. However, our findings

should not be generalised to other social networking sites without further investigation. In particular, researchers should consider looking at other platforms where images are a key part of social activity. One example would be Instagram, where images are the primary form of communication, and where image editing is facilitated via in-app filters that can be applied in the posting process. It would also be interesting to investigate the overlap between social media platforms. For example, examining differences between Facebook users who link their images to Tinder, where self-presentation is extremely important, and those who do not would provide additional insight into image editing online.

Some characteristics of the questions used for measuring selected constructs may also represent a limitation of this study. The measurement of editing application use may be limited by the broadness of the questions posed to participants. The questions asked participants whether they had used various programs and platforms to edit images in the past. However, the questions did not specify what type of images the user may or may not have been editing, particularly self-images in the case of the present research. A 'selfie' is considered a specific subset of images, the word even warranting its own unique dictionary definition, therefore it is possible that people may respond differently if these questions were written with specific reference to self-images. Further research should be performed using questions that refer specifically to the act of self-image editing.

An additional consideration is the use of a single item to measure intentions to post edited self-images. In measuring behavioural intention, we used a single statement in an attempt to most accurately capture the construct, 'I intend to post digitally altered images of myself on Facebook in the future'. Some research supports the use of single-item measures where the construct is considered 'doubly concrete' as opposed to abstract, that is, there is a simple and clear object and a single attribute (Bergkvist, 2014; Bergkvist & Rossiter, 2007), and it is possible to gain similar information from a single item measure of intention

compared to multi-item measures of intention in the context of the TPB (Trafimow & Finlay, 1996). Nonetheless, a prudent approach in future research would be to include additional items measuring intention, such as 'I plan to post digitally altered images of myself on Facebook in the future', thereby allowing additional variance in intention to be captured.

There were also a relatively small number of males compared to females in this study. Females are generally found to experience greater body dissatisfaction than males (Grogan, 2016) therefore it is possible that this greater concern for body and appearance could translate to a higher likelihood that females might edit their images. On this basis it is also advised that future research examine gender differences in editing intentions and behaviour. In the meantime, the current results should not be overgeneralised.

One of the few existing studies examining image editing online suggests that it may be linked to body and eating related concerns (McLean et al., 2015). If further research clarifies the negative outcomes associated with such behaviour, the factors identified in this study provide possible avenues for identification of individuals likely to post digitally altered images, who may be at a higher risk of experiencing negative consequences as a product of this behaviour. The variables discovered to be useful in the prediction of editing intentions may also be assessed in individuals to determine the possible causes of body and eating related concerns after they have arisen. For example, for an individual who has strong positive attitudes towards editing, and a history of using editing applications, image editing might be attributed as a possible cause for body related concerns and targeted in treatment.

Finally, it is recommended that research go on to examine editing behaviour using a longitudinal design. While it is appropriate to assess the role of attitudes, subjective norm, PBC, and intention in a cross-sectional manner, causality can only be inferred. While behavioural intention is linked to performing that behaviour (White & Wood, 2011), it would be useful to assess the extent to which the current model explains actual posting of edited

self-images. Also, as previous research has proposed regarding ‘selfie’ posting, it could be that the more one posts edited photos, the more narcissistic they become (Halpern et al., 2016). A longitudinal design would therefore also help to examine this self-reinforcing spiral of narcissism that may be associated with image editing behaviour.

2.6.2 Conclusions

The few extant studies examining editing behaviour on social media have shown links to socially aversive personality traits and possible contributions to body and eating concerns (Fox & Rooney, 2015; McLean et al., 2015). It is therefore of primary importance to understand the way Facebook users approach image-editing behaviours. The current study is the first to adopt a theoretical framework to explain image-editing behaviour on Facebook. Using an extended TPB model we clarified the factors influencing intentions toward self-image editing behaviour on Facebook. Overall, the findings of our study provide useful insights into key factors that predict image-editing intentions, helping to elucidate the behaviour itself, which has yet to be substantially researched. Specifically, editing application use, Facebook Intensity, attitudes, subjective norms, and narcissism were significant individual predictors of intentions to post digitally altered self-images on Facebook in the final model. This research provides a first step in investigating editing behaviour and its predictors. Given that editing is facilitated on other SNS (e.g. Instagram) further research examining image editing in a variety of SNS contexts is recommended.

2.7 References

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Chapter 3, Paper 2:

Thumbs Up: A Thematic Analysis of Image-based Posting and Liking Behaviour on Social Media

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Emily Lowe-Calverley 28 June 2019

3.2 Abstract

This study aimed to investigate the thoughts that social media users have prior to posting or 'liking' images on social media; particularly exploring the presence of egoistic, self-presentation considerations. Responses to two open-ended questions regarding considerations prior to posting (n = 203) and 'liking' (n = 195) images on social media were analysed using thematic analysis. Egoistic motivations influenced both posting and 'liking' an image on social media; suggesting an awareness that self-presentation can be affected (and therefore manipulated) through image posting and 'liking'. Users also considered who would see their content or behaviour, and the effect this might have on others. Finally, 'liking' actually represents liking, with enjoyment and image value considered prior to providing public, online appreciation.

Keywords: image-based communication; self-presentation; thematic analysis; social media; liking; posting

3.3 Introduction

Social networking sites have become central to current day social interactions. Social networking sites including Facebook and Instagram facilitate communication through the posting and 'liking' of content, for example, the images that users post on their social media accounts. Photos receive more "likes" on Facebook compared to any other kind of status update (Kapin, 2012), and 4000 photos are uploaded to Facebook per second (Aslam, 2018). However, little research has examined the thoughts and considerations that influence and underpin these commonplace, image-centred social media behaviours. Notably, numerous social media platforms (e.g. Instagram, Snapchat, and Pinterest) are now dedicated solely to image-based content; thus a large number of social media users interact with images regularly. Exploring these image-based forms of social media, and the behaviours of individuals as they post and engage with images, is therefore of growing importance. With images emerging as a key communicative tool on social media (Katz & Crocker, 2015), an increased understanding of the way that intentions and meaning are ascribed to users image based behaviours will help users to transmit their ideas and interpret each other more effectively. The aim of the current study was to explore the considerations social media users have prior to posting as well as 'liking' image-based content on social networking sites, and to analyse the way in which self-presentation appears in considerations related to both behaviours.

3.3.1 The Power of Images in Social Media

The sharing of images is a central behaviour on social networking sites. The Internet is increasingly visual, with photos as the primary currency for online social transactions (Oeldorf-Hirsch & Sundar, 2016). For example, a photograph or picture can be seen as "the receipt of experience"; a key form of evidence of a life lived (Silverman, 2015). For social media users, this can culminate in the belief: if there are no pictures, did the event even

happen? (Silverman, 2015). Indeed, photos on social media appear to be associated with a level of credibility that text-based posts can lack; perhaps contributing to their success in impression-management and self-presentation (Marwick, 2015).

The posting of pictures online mimics the function of 'private memorialisation' performed by traditional photographs (Gye, 2007), but with social media, images are now displayed for wider consumption on a more public platform, with the ability to manipulate exactly what is memorialised (Le Moignan, Lawson, Rowland, Mahoney, & Briggs, 2017). The images that users post on social media help to tell their story, construct their identity, and may even reveal deeper insights into the user's life and character. For example, romantic-selfie posting frequency appears to correspond with aspects of love towards romantic partners (Sabiniewicz, Borkowska, Serafińska, & Sorokowski, 2017). For males, the number of romantic selfies per month was positively related to measurement of their overall love, passion, and commitment. For females, posting more romantic selfies was linked to feelings of commitment (Sabiniewicz et al., 2017).

The way users pictorially express their lives and identity may also be influenced by the large audience associated with social media use. Posts with photos tend to attract more audience response than those with videos, links, or textual status updates (Strekalova & Krieger, 2015). If users are aware of the popularity of image-based content they may experience more pressure when deciding what to post or 'like'. Conversely, users may use this knowledge to carefully craft the way they are perceived by others.

Though pictures can be shared across most social media platforms, the shift toward image-based communication is evident through the emergent popularity of image-based social platforms such as Instagram and Snapchat. As highlighted in research looking specifically at Instagram, posting images appears to be heavily driven by self-promotion and validation ('like') seeking; with over 90% of users admitting to engaging in at least one

'like'-seeking behaviour (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017). Two forms of 'like'-seeking behaviour were delineated within that study, normative (e.g., the use of hashtags and filters) and deceptive (e.g., dishonest actions such as buying 'likes'/followers or changing one's appearance using software); with those possessing higher levels of narcissism more likely to engage in deceptive like-seeking behaviours (Dumas et al., 2017). The notable prevalence of deceptive 'like'-seeking behaviours (12-55%; Dumas et al., 2017) speaks to the essential role of images in current-day self-presentation and personal validation.

3.3.2 Uses and Gratifications of Image-sharing

Understanding why people use social media delivers insight into the nature of specific social networking behaviours. Uses and Gratifications Theory posits that audiences actively choose media to meet their needs. Motivations are elucidated by asking why users become involved in social media, and what gratifications they derive from its use (Ruggiero, 2000).

Broadly, social media use is driven by emotional, social, cognitive and habitual needs (Wang, Tchernev, & Solloway, 2012). Wang et al. (2012) also noted that ungratified needs can accumulate and drive heavier future social media use. The use of Facebook specifically, is driven by the need for self-presentation and the need to belong (Nadkarni & Hofmann, 2012). Through the content that they choose to post, users engage in a cycle of continuous impression-management. This cycle is likely encouraged by the positive feedback that is associated with positive online self-presentation (Metzler & Scheithauer, 2017).

Use of image-based social media is related to decreased loneliness, and increased happiness and satisfaction with life, as a function of the increased intimacy facilitated by communication through images (Pittman & Reich, 2016). In that study, participants were asked to produce words and phrases that related to why they and others use a particular social

media platform. For image-based platforms, analysis with VOSviewer[5] density visualisation suggested that sharing photos of or with friends gratifies the needs for affection, attention, and close familiarity. Engagement with text-based platforms also had a social component, but mostly gratified the desire to 'kill time' or to collect news from around the world, lacking the intimacy that users associated with image-based communication. No relationship was present between text-based social media and psychological wellbeing.

While the key point of Pittman and Reich's (2016) study was to determine how text versus image-based platforms affect loneliness, it also established the idea that image-based communication stands apart from other social media uses, with distinctly different gratifications. Those authors suggested that an image may be worth a thousand words on social media. This intimate, communicative use of images may be best demonstrated on Snapchat. There, users exchange selfies as a form of picture-based conversation (Katz & Crocker, 2015). Snapchat users place great importance on social connectedness (Grieve, 2017), and report that communicating via images allows for more accuracy in the communication of emotional context than text-based messages (Vaterlaus, Barnett, Roche, & Young, 2016). For many users Snapchat is viewed as a platform for enhancing close interpersonal relationships via the sharing of 'everyday moments' (Bayer, Ellison, Schoenebeck, & Falk, 2016; Vaterlaus et al., 2016). With the development of 'story' sharing on Instagram, now both image-based platforms facilitate intimate, ephemeral, pictorial storytelling (Goode, 2018).

Additional evidence from Oeldorf-Hirsch and Sundar (2016) supports the social and self-presentation needs that are met through photo-sharing online. Those authors identified four classes of gratifications: Firstly, participants indicated the desire to seek, showcase and

[5] VOSviewer is a software tool that facilitates visual analysis of bibliographic networks, showing how words cluster with other words to form neighbourhoods.

exchange their personal experiences. Secondly, technological affordances, such as the ease with which photos can be shared, was an important factor in the motivation to share photos online. Finally, social connection (maintaining close and intimate relationships) and reaching out (interacting with a broad audience) were the third and fourth identified gratifications, respectively (Oeldorf-Hirsch & Sundar, 2016). With the exception of technological affordances, the gratifications outlined by Oeldorf-Hirsch and Sundar (2016) support the social functions related to image-based platforms identified by Pittman and Reich (2016). Relatedly, Treem and Leonardi (2012) highlighted the technological affordance of visibility; social media's ability to enable users to effortlessly see information that would have previously been invisible to others. Both Oeldorf-Hirsch and Sundar (2016), and Treem and Leonardi (2012) highlight the ease with which users can share and access information on social media; with fast and minimal actions required, technology affords users with an ideal environment for maximum impression-management impact. Opportunities for self-presentation are readily available in all aspects of SNS use, from the obvious; for example, status updates and the development of a personal profile, to the covert; expression of opinion through comments and 'likes' and publicity of connections via 'friends' lists (Treem & Leonardi, 2012). For egoistically motivated individuals, an awareness of the visibility afforded by social media may be used to shape others' perceptions of oneself.

3.3.3 Motivations for 'Liking'

Social media 'likes' are a form of paralinguistic digital affordance; a non-verbal, 'one-click', gestural cue that facilitates communication (Hayes, Carr, & Wohn, 2016b). Paralinguistic digital affordances are present on a number of platforms and appear in a variety of forms. On Facebook, Instagram, and Youtube, users can explicitly 'like' content, through the use of a 'thumbs up' or 'heart' icon. More recently, Facebook extended their 'like' function to take the form of six, specific emotive 'reactions': 'like', 'love', 'haha',

'wow', 'sad', and 'angry' (Stinson, 2016).

Socialising, entertainment, information, and self-status seeking (succumbing to peer pressure and the desire to advance ones' image or career), predict the use of Facebook groups (Valenzuela, Park, & Kee, 2009). Similar uses and gratifications can potentially be linked to 'liking' behaviours on social media. Social media users may be driven to 'like' images that they enjoy to gratify their entertainment and amusement needs. Alternatively, if users consider 'liking' images as a social gesture to support others (Hayes, Carr, & Wohn, 2016a), this action may gratify their socialising needs as a means of maintaining relationships. If, however, users are mindful of crafting their likes to enable viewers to perceive them in a certain manner, they may gratify their self-status seeking needs.

Motivational theory can also be used to explain 'liking' behaviours. Levorashka, Utz, and Ambros (2016) found the literal interpretation of a 'like' was the highest rated motive, with relational motives and social motives also indicated for 'liking' on Facebook. Hayes et al. (2016b) also found that paralinguistic digital affordance use was motivated by wanting to express the literal, enjoyment-based, interpretation of a 'like'. However, those authors found acknowledgement of viewing; social support and grooming; and utilitarian purposes (as a personal archival tool) to be additional motives for 'liking' behaviour. Likewise, Chin, Lu, and Wu (2015) investigated motivations behind Facebook 'liking'. Hedonic motivation (seeking to amuse, entertain, or interest the viewer) predicted participants' attitudes toward posting, and therefore their subsequent 'liking' behaviours. Other motives were utilitarian (provision of useful, helpful or informative content) and compliance-related (where the original poster's identity would affect the need to show compliance by clicking the 'like' button). To a lesser degree, 'liking' was influenced by conformity motivation (the number of 'likes' already attained on a post) and affiliation motivation (content that helped viewers to understand daily life and mood). Although Chin et al.'s (2015) study considered some key

factors that influence whether a user will ‘like’ an image, egoistic motivations (motivations rooted in self-interest), were not considered in that study. In terms of image-liking, an egoistic motivation might be self-presentation; with a user ‘liking’ a particular image so that others view them in a better light, for example, as kind, funny, or ‘cool’.

Self-presentation is a process whereby users control the image of themselves that they share with others (Baumeister, 1982). Self-presentation is readily facilitated by social networking sites (Yang & Brown, 2016) as users can selectively choose the content they share and ‘like’ in a public domain for immediate or delayed consumption among a broad audience (Acar, 2008). Self-presentation online can therefore be more strategic than in traditional face-to-face communication. Where posting content allows for explicit control over self-presentation, the use of paralinguistic digital affordances may provide a covert form of self-presentation, as it is impossible for a viewer to know the true motive of a user’s ‘like’. In this way, ‘liking’ (a behaviour seemingly directed at others) may be an egoistic behaviour, with the focus on oneself rather than the subject of the ‘like’. Users may identify ‘likes’ as a tool for subtly manipulating their appearance for the consumption of others, as opposed to the more obvious behaviour of posting carefully selected material. The strategic and egoistic use of ‘likes’ may range from choosing not to ‘like’ something you feel might reflect poorly on yourself, all the way to purposefully ‘liking’ specific content to shape your projected image.

Lee, Ahn, and Kim (2014) were the first to acknowledge that self-presentation behaviour can be present in behaviours other than the posting of content on social media. ‘Liking’, commenting, and sharing content are all public behaviours and may therefore offer a means of exerting control over self-presentation. In that study, extraversion predicted self-presentation behaviours both on the ‘wall’ (uploading photos, updating status, and adding friends); and at the ‘newsfeed’, where extraversion also predicted ‘liking’, commenting and sharing behaviour. In a business context, ‘liking’ represents consumer perceptions and

likelihood of purchase (Brison, Baker, & Byon, 2015). If a ‘like’ is seen as an endorsement, others may base their judgements of a person on the content that another person ‘likes’.

Sumner, Ruge-Jones, and Alcorn (2017) explained that a Facebook ‘like’ serves to fulfil the interpersonal function of self-presentation through identity experimentation and impression management. If self-presentation can be achieved both through posting and ‘liking’ images, it is possible that users not only construct their identity through the content they post on their own page, but the reactions they have to other users’ content. Interestingly, this results in an online dynamic where the meaning of a ‘like’ becomes more ambiguous. Users may ‘like’ an image because they genuinely enjoy the content (the most basic and logical interpretation of a ‘like’), however they might also ‘like’ an image to create a particular impression (for example ‘liking’ an image of an old growth forest, to intentionally create the impression that they care about the environment). Indeed, users indicated an awareness of the publicity of their Facebook ‘liking’ behaviour, and the possibility for conflict between true enjoyment of content, and the strategic decision of whether to align themselves with content by clicking the ‘like’ button (Sumner et al., 2017). Sumner et al. (2017) examined content ‘liking’ on Facebook, however, given the differences that can be identified between platforms and the important role of image-based content in self-presentation (Marwick, 2015; Pounders, Kowalczyk, & Stowers, 2016; Sung, Lee, Kim, & Choi, 2016), the value in taking the next step of studying specific types of content across a variety platforms is evident.

3.3.4 The Current Study

The present study aimed to provide a detailed exploration of the presence of egoistic considerations prior to posting or ‘liking’ specifically image-based content on social media. We present two exploratory thematic analyses to extend our understanding of posting and ‘liking’ of image-based content on social networking sites. Thematic analysis facilitates a

rich, detailed, and complex examination of users open-ended responses (Braun & Clarke, 2006), allowing subtle themes to emerge that may otherwise be missed. By using the term 'social media', this approach also allows for the emergence of ideas regarding the differences between platforms, should variations be salient enough to organically arise within responses. Given the substantial research focusing on individual platforms (e.g. Facebook), we hoped the diversity of responses within our study would clarify the consistency (or inconsistency) of thoughts and behaviours across platforms.

Images are a key form of communication on social networking sites (Pittman & Reich, 2016). The social functions that image-based behaviours gratify are well documented, such as social connection, reaching out (Oeldorf-Hirsch & Sundar, 2016), affection seeking, and attention seeking (Malik, Dhir, & Nieminen, 2016). In the social media environment, users have the ability to readily exert control over their self-presentation (Yang & Brown, 2016), however details of users' thought processes, awareness, and manipulation of self-presentation in the posting and 'liking' process are less clear.

Research has now acknowledged that control over self-presentation exists both in what users post, and how users interact with others' content (Lee et al., 2014). Therefore, it was anticipated that self-presentation would emerge as a key theme motivating both posting and 'liking' behaviour. Furthermore, hedonic, social, and information gathering motives are present in various aspects of social media use (Chin et al., 2015; Valenzuela et al., 2009), therefore it was also anticipated that these would emerge as considerations prior to posting and 'liking' behaviour on social media. Paralinguistic digital affordances such as 'likes' can also be interpreted as a form of social support (Hayes et al., 2016a). We therefore expected to also see users considering the provision of support prior to 'liking' an image.

Further, in seeing the frequency of the emergent themes we also hoped to gain insight into the relative importance of liking and posting motivations– for example, are people more

focussed on themselves or others when preparing to post or 'like' an image on social media? Sampling the considerations users have prior to engaging in image-based social media behaviours allows these factors to be addressed. We therefore asked participants to respond to two open-ended questions:

1. "What factors do you consider prior to posting an image [on social media]";
2. "What factors do you consider prior to 'liking' an image [on social media]", where 'liking' denotes the act of hitting the 'like' button in relation to an image on a social media platform.

Through the varied and nuanced responses that a qualitative study provides, we sought to organically explore the factors that users are cognisant of during image-based social media behaviours.

3.4 Method

3.4.1 Participants

Participants (N = 203) from the Australian general public provided qualitative survey responses for Question 1 (41 Male, 162 Female) with an age range of 15 to 66 years (M = 25.97, SD = 10.51)[6]. For Facebook, 69% of participants indicated their use as being "very frequent", while 29.6% indicated very frequent use of Instagram, and 21.7% very frequent use of Snapchat. For Question 2, 195 participants with ages ranging from 17 to 66 (M = 26, SD = 10.63) provided qualitative responses (42 Male, 153 Female). Of these participants, 70.3% used Facebook, 29.2% Instagram, and 22.6% Snapchat, very frequently. These statistics indicate that the participants were frequent users of social media, making them an appropriate group from which to derive information regarding social media behaviours. Facebook was the most commonly used platform. However almost a third, and just over a fifth of the participants reported very frequent use of Instagram and Snapchat, respectively, suggesting that our participants regularly engage with specifically image-based social media.

[6] Participants were recruited via Facebook posts advertising the study.

Engagement with this kind of media is relevant given our focus on image-based behaviours. Furthermore, a sample including very frequent users from numerous different platforms ensures richer information regarding behaviours, and whether behaviours change across platforms.

3.4.2 Design and Procedure

Ethical approval was given from the University Human Research Ethics Committee. After providing informed consent, open-ended qualitative responses regarding posting and liking behaviour on social media were collected. To encourage honesty, data was collected via the completion of an anonymous online questionnaire hosted on SurveyMonkey.

3.5 Coding

Participant responses were analysed using inductive thematic analysis as per Braun and Clarke (2006). In taking an inductive approach, rather than being influenced by theoretical interest, we sought to explore the themes as they organically emerged from the data. Initial coding and analysis was performed by the first author and verified by the second author. Themes were identified and coded from the entire data set to ensure a rich thematic description. Participant responses were analysed using the 6 phases of thematic analysis (Braun & Clarke, 2006). The first phase involved becoming familiar with the data, searching for meanings and patterns as the responses were repeatedly read. Next, the initial codes were produced. Participant responses were coded for key words, phrases, and sentences that indicated recurring patterns in the data. Where responses clearly addressed a number of dimensions they were coded in a way that acknowledged each individual idea. The codes were then analysed, organised, and combined into early themes. In this early stage all distinct and valuable ideas were categorised under a theme; there was no numeric threshold for retention. The fourth phase involved the reviewing and refinement of themes. Themes were deleted or collapsed with similar themes when there was not enough data to support them

individually, or when the data were too diverse for the theme to be explicit. Themes were only collapsed together when their core meaning was homogenous; determined by the use of common words/phrases, or by examining and interpreting the latent meaning of the responses. The themes were then named and clearly defined. Where multiple themes were collapsed to become 'meta-themes' the given name was either entirely separate, or the most dominant name among the 'sub-themes'. The two final meta-theme sets were designed to capture the diversity of responses, through clearly defined and distinct themes. Although a clear line between themes was sought, the final themes are not entirely mutually exclusive and some links may be identified. For example, when examining 'liking' behaviour, the themes 'audience' and 'reputation' may be perceived as conceptually similar with the common subject identified as others' perceptions. In clarifying the distinctiveness of these themes it is essential to highlight the 'self' vs. 'other' orientation in participants' responses. Where a response reflected the theme 'audience', users were concerned about the effect of their 'like' on the viewer. In contrast, 'reputation' represented users' concern for themselves and the judgement that they invite through their 'liking' behaviour. In this instance we believed that the subtle difference in meaning combined with the frequency of these themes was salient enough to warrant distinction. Interestingly, while consideration of others' perceptions and judgement was also identified in responses for image posting, the theme was far less common and distinct than for 'liking', and did not warrant individual classification. Therefore for the analysis of image posting, ideas relating to reputation were subsumed under the theme 'audience'. It is therefore important to acknowledge that in some cases the emergent themes may be further collapsed or expanded, however we believe that the current level of explanation accurately represents the diversity in responses and the latent themes in the data.

3.6 Results

The resulting themes convey unique points explaining how users engage in communicative behaviours through images on social media. For Question 1, ten key themes emerged representing unique and meaningful considerations that users have prior to posting an image. Seven prominent themes emerged for Question 2 (See Table 3.1). Overall, responses to Question 2 were less diverse than those to Question 1, resulting in fewer final themes.

Table 3.1

Comparison of themes derived from considerations prior to posting and 'liking' images on social media

"What factors do you consider prior to posting an image [on social media]"			"What factors do you consider prior to 'liking' an image [on social media]"		
Sub-Themes	Meta-Themes	Description	Sub-Themes	Meta-Themes	Description
Audience Reputation	Audience	*Audience Perception*	Enjoyable Content Actually Liking the Image Humour Quality	Content Appreciation	*Genuinely enjoying the content displayed*
Appearance Attractiveness	Attractiveness	*Desire to look good in the image*	Friends	Friends	*The person posting and your opinion of this person*
Appropriateness	Appropriateness	*Is the image suitable vs. offensive?*	Audience	Audience	*Concern for the effect of the 'like' on the viewer*
Image Quality/ Composition	Image Quality/ Composition	*Level of technical image-appeal*	Reputation	Reputation	*Could 'liking' this content harm one's appearance/image?*
Subject	Subject	*Who else is in the photo?*	Appropriateness	Appropriateness	*Is 'liking' this image suitable vs. offensive*
Response Likes	Response	*Viewers' possible reaction to image*	Support	Support	*'Liking' to encourage, support, or endorse someone or their behaviour*
Platform	Platform	*Where is the image being posted?*	Do others 'like' it?	Do others 'like' it?	*Number of existing 'likes' on content*
Privacy	Privacy	*How much personal information is being shared?*			
Online Longevity Publicity	Online Longevity	*Public implications of images*			
Humour Entertainment	Humour	*Posting to amuse others*			

3.6.1 Posting an Image

The open-ended responses were coded using thematic analysis. A variety of themes were derived and merged, where appropriate, to give a clearer picture of the considerations social media users have prior to posting an image. Themes of 'appearance' and 'attractiveness' of the self were merged to represent 'attractiveness' - the desire to look good in the image. 'Reputation' and 'audience' were combined under 'audience'- viewer identity and perception. 'Response' and 'likes' were merged as 'response', denoting thoughts of the viewers' possible reaction to the image. 'Humour' and 'entertainment' came under the theme 'humour'; posting images to amuse others. Finally, 'online longevity' and 'publicity' were merged to represent 'online longevity'. Different to the theme 'privacy', 'online longevity' captured the public implications of images, as opposed to the desire to restrict the sharing of information. In each case, the dominant title was chosen as it was most appropriate to the theme as a whole. Ten final themes were derived from the data, which will now be discussed in order of greatest to least salience[7].

3.6.1.1 Audience. The most prominent theme was consideration of audience and perception. Participants considered pleasing the audience with their content "Who will see the image. If people will enjoy looking at the image", and concern for their image and appropriateness of sharing "How it might be perceived on FB [Facebook] is an important consideration. I won't post anything that is annoying, aggressive, [or] shallow ("Aren't I looking beautiful") … I guess I care to control how I am perceived in so far as I can". The relevance of audience communicates that users are concerned about the perceptions of others, and do not post content with purely selfish motives (e.g. 'I like this photo so I'm going to post it').

[7] Salience or prominence was determined by the number of times a theme appeared in user responses - with the most prominent themes emerging most frequently.

3.6.1.2 Attractiveness. Attractiveness of the self was considered to be an important factor, along with attractiveness of the surroundings within the image, "what's in the background, mess etc.", especially if the image would be public, "If I am sending broader then I will often take multiple shots to get a good image, especially if it is one of myself", "I generally choose images that make me/my family look "good" i.e. happy and healthy (which is not necessarily the truth)". The priority given to attractiveness is intuitive, aligning with the idea that self-images can be seen as representing an extension of the self, and therefore may be important to the individual's self-concept (Çadırcı & Güngör, 2016).

3.6.1.3 Appropriateness. Often related to the 'audience', was whether the image would be suitable to post. Participants indicated being conscious of giving offence, political incorrectness, nudity and sexual references, and whether the material would be suitable for a potential employer to see, "I do not think much of any specific factors, as long as it is acceptable to the public, ethical, and respect[s] other people's sensitivities", "I won't post anything that would knowingly offend any of my friends on Facebook. I won't post anything that's politically incorrect", "safe viewing for minors". By suggesting that content should be monitored for appropriateness, users acknowledge unspoken standards that go beyond those put in place by the platform itself, and influence their individual choices in content. The theme of appropriateness reiterates the importance that users place on others' opinions as a motivator behind posting particular content.

3.6.1.4 Image Quality and Composition. Many social media users indicated that it was important to consider how well the image had been taken (e.g. focus), the consistency of that image alongside the rest of their social media content (e.g. consistency of filter use), and 'lighting'; "Is the composition (contrast, colour balance, negative space – yes, I really do consider this) appealing?", "Does this look like the other content I post?", "quality". It may be argued that this theme could be merged with attractiveness, however we believe that it

describes a more specific form of image attractiveness that looks at the technical ability of photo composition – the difference between an attractive picture that is taken and used skilfully, and one that is not. Furthermore, 'attractiveness' as the aforementioned theme describes, is centred on attractiveness of the self, with users primarily concerned about whether they look attractive in the photo. For image quality, participants were instead referring to more general or technical image-appeal, with the focus away from 'the self' and on the characteristics of a 'good' photo more broadly.

3.6.1.5 Subject. Social media users also indicated consideration of who else is in the photo prior to posting, ensuring that others look good and would not mind the image being posted, e.g. "who is in the photo, will they like that I'm posting it?", "If any of my friends are in the photo, would they want me to put it up? Should I ask them first?". Considering others speaks of the social nature of social media, and the desire to maintain rapport with 'friends' by ensuring their online profile is not affected negatively by your posting. Further, it shows that online behaviours might influence offline relationships, with 'real-life' implications attached to how an individual approaches posting images of others.

3.6.1.6 Response. Further down the list than may be expected, given that receiving "likes" and comments is the main feedback that a user receives when posting, was response; whereby users considered whether people would like their images, and whether this would result in tangible 'likes' via the platform, e.g. "will the image be more likely to get a response from my 'friends'", or explicitly, "if it will get any 'likes'". The position of response in relation to the other themes may be explained in terms of being an 'order of operations.' The first five themes are predominantly related to content selection. Perhaps only once the content is chosen, are individuals motivated by whether the content will generate the desired feedback when posted.

3.6.1.7 Platform. Some users indicated that their considerations differed depending on the location that the image would be posted; “Instagram – quality of the picture. If it is artistic. Facebook – most informative”. Overall, Facebook was characterised by higher privacy and ensuring appropriateness, Instagram by a more public and detached form of posting where quality was more important, Snapchat by intimacy (posting often “funny” images to friends), and Pinterest as a personal log; “If it’s Snapchat I don’t really care as I only post to close friends. On Facebook I make sure it’s nothing too trashy and I look nice in the pictures”. Again this supports an order of operations, with the focus now turning to the process of posting. Interestingly, this theme shows that there are different considerations across different social media platforms. Participants appear to value aesthetic factors on Instagram, the meaning of an image on Facebook, and have fewer considerations on Snapchat where images are self-deleting and kept in close friendship circles. The diverse nature of each platform as highlighted within our data is consistent with the existing literature, for example, previous research suggests that the light-hearted nature of Instagram and Snapchat make them inappropriate platforms upon which to seek emotional and informational support (Hayes et al., 2016a). Conversely, that study highlighted that due to the smaller and closer network found on the platform, and the ability to target specific friends, Snapchat was a favourite location for posting in search of appraisal support (Hayes et al., 2016a); aligning with our findings that while differences are subtle, they are consciously acknowledged by users. These differences have broader implications for research, suggesting that the unique intricacies of each platform should be acknowledged, and that findings should be generalised across all platforms with caution.

3.6.1.8 Privacy. For a number of users, privacy was a concern, “Does it reveal something I don’t want to? (like my car license plate)”, with many simply stating “privacy” of the self and others who they may be posting an image of, including children who may not

have a say in their presence on social media "If I'm sharing something sensitive, i.e. children". It is apparent that users are conscious of how far information travels and the quantity of information their content might be revealing. The theme of privacy reveals an intriguing paradox; the desire to share vs. the desire to maintain some aspects of anonymity. The 'paradox of privacy' may have originally resulted from users engaging with social media without knowledge of possible security issues or exploitation (Mainier & O'Brien Louch, 2010), however the current research suggests that users are now aware of these issues and acknowledge them as a consideration in their use of social media. Research shows that social media users are becoming more active in managing their accounts (Madden, 2012); perhaps suggesting increasing education and awareness of social media privacy issues and management strategies over time.

3.6.1.9 Online Longevity. Users were relatedly conscious of the longevity of their online posts; with considerations including that the image would be in the public domain, possible regrets, and the desire to look back in the future, "will this image come back to haunt me?", "who will see this in 30 years?", "do I want this online forever?". Users may be concerned that their future partners, children, or employers may see the content they have posted in the past. Employers realise that the information stored on social media might provide a further glimpse into the nature of a potential candidate (Brooks, 2016). With users aware of the numerous contexts in which their posts might be viewed in the future, it makes sense that they would be considering the possible implications of their posts.

3.6.1.10 Humour. Finally, users indicated that humour was an important factor to which images they post online. Users considered whether the images would be perceived as "funny", "witty", or "silly and therefore likeable". Participants therefore acknowledge that the Internet and social media provide an essential domain for the sharing of humour, further evidenced through the virality of 'memes' (Wiggins & Bowers, 2015) and pages devoted to

the sharing of funny images and videos. Some responses also suggest that to be funny or silly is to be more likeable, with users therefore considering the use of humour to gain popularity.

In sum, these results show that the considerations that motivate individuals to post an image are many and varied, demonstrating the complexity of the thought process behind posting, and indicating that users are cognisant of the implications of their online behaviour. The aforementioned themes emerged separately, however another possible interpretation is that some of the themes hang together when considered in the broader milieu. In this structure, the themes correspond with the steps of posting: selection, posting, and aftermath. While describing the considerations more broadly as three stages provides less detail about the specific thoughts users have, it does suggest that perhaps users are aware of different factors at different stages of posting, and that posting an image is a process.

3.6.2 "Liking" an Image

Research suggests that the way individuals respond to content on social media can also be seen as behaviour to control self-presentation (Lee et al., 2014). On social media platforms such as Facebook and Instagram, 'likes' are public and can be seen to represent social support (Hayes et al., 2016a, 2016b; Wohn, Carr, & Hayes, 2016); therefore a 'like' may not just represent enjoyment of content, but may also be strategically used to show support where showing support would say something about an individual's character. Scarce research has examined 'liking' behaviour and how 'likes' may be used in self-presentation, thus the qualitative approach of the current study, and emerging findings, provide profound insight about the way people craft their online persona.

The responses from Question 2 were analysed to uncover the important themes within the data. Seven themes were derived from responses. These themes represented unique dimensions of participants' considerations, once responses were coded and overlapping themes were merged. For image 'liking', themes of 'enjoyable content', 'actually liking the

image' 'humour' and 'quality' were merged together as all representing aspects of 'content appreciation'. The final seven themes are discussed from most to least frequently considered.

3.6.2.1 Content appreciation. As would be expected in a scenario where one is considering publicly endorsing an image, *actually liking* the content displayed was an important factor. Participants held standards for the content they would endorse; with preference for quality images that they found interesting and attention grabbing, humorous, emotionally touching, or relevant, e.g. "It has to have merit in some way. Funny, thought-provoking, cute family pic…", "I usually avoid liking some photos unless worthy of my like". Responses may be interpreted as tapping into two different aspects of content appreciation: purely hedonistic enjoyment of the image, versus the perception that an image is 'worthy' of appreciation. The idea of worthiness could be seen as Narcissism influencing the 'liking' of content. Narcissism is a personality trait characterised by feelings of superiority, vanity, and entitlement (Raskin & Terry, 1988). In this scenario, Narcissism may manifest as a standard whereby the content has to be good enough or compare with one's own output to earn approval.

3.6.2.2 Friends. An important factor was 'friends', or more specifically, the person posting and your opinion of that person, "importance to the person who posted it, if they are important to me", "I am less likely to 'like' something by someone I don't consider a 'real' friend in real life, as I don't want to give them that digital support". This reveals a priority given to real-life-friends, which translates to the user's desire to be a good 'online' friend by supporting their content. Furthermore, users identify that a 'like' can be interpreted as care or encouragement that may have some psychological importance for its recipient.

3.6.2.3 Audience. Again demonstrating the importance of the social aspects of social media, was 'audience', with users indicating concern regarding the effect that their 'like' could have on the viewer. Audience was considered within two main contexts: Who might

see ("Do I want everyone to know I liked this"), and how the content might affect others, "…the content might upset others, then I'll be a little more respectful as liked content can be seen by others". Responses indicated awareness that 'liked' content appears publicly alongside the name of the user 'liking' it; therefore, users expressed caution depending on the nature of the content they were 'liking'.

3.6.2.4 Reputation. Closely linked to audience was reputation; how a 'like' could translate to harming one's public appearance/image. The theme of 'reputation' revealed that 'liking' an image could be just as important for self-presentation as posting one, as it could be seen to reflect positive or negative characteristics of the self. In this way, users have the ability to purposefully manipulate their likes to promote their positive, and omit their negative characteristics. Users often indicated caring about whether their 'like' would be seen as endorsement, and what this endorsement may say about them, e.g. "Would I want it associated with my profile?". While many considered reputation in terms of negative judgement, some participants indicated using their like to shape their impression in a positive manner, "I sometimes 'like' images purposefully so people can see I have liked it, for example, promoting a photo of animal advocacy".

3.6.2.5 Appropriateness. Appropriateness was a relevant consideration for both posting and 'liking' behaviours. Participants mainly considered the acceptableness versus offensiveness of content, "Is the photo suitable to like?", "If I find it offensive or indiscrete", "Is it rude?". The consideration of appropriateness might relate to ones' own perception of the content, however it may also relate to self-presentation, where users are conscious of not-liking content that would reflect poorly on themselves, regardless of their own perceptions.

3.6.2.6 Support. Participants also indicated thinking about how their 'likes' may be useful for encouraging, endorsing, or supporting another and/or their behaviour: "I am more inclined to 'like' images by people that I want to support digitally or in real life", "Liking

when someone says something bad happens is sort of weird, however on Facebook I think 'like' can mean you like the person but not necessarily what happened, e.g. a personal post about a family illness or death can be 'liked' but it means you are with them and that you care". By considering 'support' users acknowledge that their 'like' carries a meaning that is understood by the recipient. This meaning indicates that the simple action of clicking the 'like' button has some communicative and social value.

3.6.2.7 Do others like it? The final consideration was existing 'likes' on content: "Who else has liked the photo?" and "Have lots of others liked the image, meaning that I should join in and endorse the event depicted?". This shows possible links to the kind of deindividuation present in group-think scenarios, where the user's sense of individuality is diminished to the extent that they follow the group behaviour of 'liking' content. Sundar (2008) referred to this as the 'Bandwagon Heuristic' with regard to users assessing the credibility of online information. This kind of group-following behaviour may also be responsible for the mass-liking that creates 'viral' content (Coker, 2016).

To review, the thematic analysis for 'liking' demonstrates the complex communicative nature of a 'like' and shows that a 'like' is a meaningful gesture. The 'like' communicates enjoyment, support, and the following of crowd consensus. The themes also suggest the utility of 'likes' for the shaping of self-presentation online, with strategic and considerate behaviour to influence impression formation.

3.6.3 Demographic Differences

Data were also scanned for any indication of patterns in themes across the demographics of gender, age-group, and time spent on social media.

3.6.3.1 Posting. We examined the responses for males and females and found no obvious differences between the themes that emerged in the data. Similarly, the themes appeared to be consistent across participants of different ages. Interestingly, our inspection of

responses suggested that the greater time a user spent on social media daily, the more participants considered the number of 'likes' their content would receive. The number of times 'likes' was mentioned within responses increased consistently from no mentions where users spent under 30 minutes on social media per day, to eight mentions for those who indicated 2-3 hours of daily use. This number reduced again for participants with over 3 hours of use, however the small representation of users within this category may explain this finding. The general pattern could be explained as people who spend considerable hours on social media may post more frequently, and in turn, care more about the audience response and popularity of these posts. Please note, this examination of responses as a function of demography and usage provides only an initial indication of a pattern; it is strongly recommended that future research test whether this effect is indeed present.

3.6.3.2 'Liking'. Again, no gender differences were apparent between the themes emerging for male and female participants. For 'liking' there were also no obvious differences across different quantities of time spent on social media daily. In examining responses according to age there appeared to be a subtle difference whereby users over the age of 40 did not mention consideration of whether others had already 'liked' an image. This might indicate that older social media users are less influenced by the desire to conform with the popular opinion of their peers, however this may also be an artefact of the skew toward younger participants within our sample, and again warrants further investigation.

3.7 Discussion

Image posting and 'liking' are common social media behaviours and are particularly relevant with some platforms (e.g. Instagram and Snapchat) dedicated solely to image-based communication. Using thematic analysis to investigate the considerations users have prior to posting or 'liking' an image, the current study sought to specifically explore the presence of self-presentation in guiding social media behaviours. Overall, our findings indicate that

people think differently about the acts of posting and 'liking'. The depth and complexity of considerations participants expressed prior to engaging in these behaviours reveals the importance that social media has in people's lives. Posting and 'liking' are not seen as inconsequential or trivial. These complex considerations covered thoughts of the self, others, and the technical characteristics of the image itself – suggesting that when posting or 'liking', an intricate string of factors come together to define a 'good' image.

The thematic analysis suggested that 'audience' is the most prominent consideration prior to posting an image on social media. Appearance also emerged consistently as a key factor influencing image posting. This finding is consistent with previous research indicating the importance of social and self-presentation motivations to behaviour on social media (Lee et al., 2014; Nadkarni & Hofmann, 2012; Valenzuela et al., 2009). The thematic analysis of image posting saw ten themes that appeared to fall into overarching categories of image selection, the posting process, and implications of the post, indicating that users think extensively about the process of posting.

The thematic analysis of considerations prior to 'liking' an image on social media also showed that users are concerned with how their 'like' is perceived by others, and whose image they are 'liking'. Users also expressed simply enjoying the image, and therefore expressing this digitally. The thematic analysis uncovered seven themes that indicated that consideration of others once again influenced users' behaviours on social media. The salience of content appreciation also supports the idea that a 'like' will often represent actual liking or enjoyment of image-based content, consistent with previous research of 'liking' motivations on Facebook (Hayes et al., 2016b; Levorashka et al., 2016). Furthermore, this study provides evidence for the existence of self-presentation motivations in image 'liking' behaviour on social media.

Given the personal and presentation-based nature of image posting, it was surprising that appearance emerged as a less prominent theme than audience considerations. That said, an alternative interpretation is that audience considerations could be viewed as a form of self-presentation; how others feel when viewing an image ultimately reflects either positively or negatively on the image-poster. The importance of the audience additionally supports findings that the social aspects of social media are among the most valued (Wang et al., 2012). Also highlighted is the interactive nature of social media and the out and in-bound communication involved in image-based behaviours. An individual posts an image apparently aware that the images they post will convey facets of their nature to the audience, and the audience responds to the images through 'likes' to demonstrate their support of this message. The insights in the data for posting and 'liking' demonstrate that a lot of thought goes behind seemingly simple and meaningless behaviours on social media, speaking to their broader importance in current-day communication and social interactions.

Closely linked with considerations of audience, were considerations of image appropriateness. Warren Buffett famously said, "it takes 20 years to build a reputation and five minutes to ruin it" ("The 16 best things Warren Buffett has ever said," 2013). With the instantaneous and pervasive nature of social media, our data suggest that social media users are highly aware that it now takes only moments to potentially damage your image through an ill-thought-out post. Users' considerations reflected a need for appropriateness (for example, in relation to future employment) as well as avoiding offending their audience. Interestingly, while multiple participants mentioned considerations of privacy, only one participant (in the context of discriminating between different settings on Instagram versus Facebook) alluded to differing 'privacy settings'. Perhaps social media users' perceptions of privacy have evolved over time; now not just considering their page privacy settings, but also

thinking in terms of the "big picture" – how much are they revealing to whom, and what ramifications will this have in the offline world.

With the exception of content appreciation, the considerations for 'liking' all had a social aspect that captured thoughts of "what does this 'like' mean, and how will it be interpreted [by the recipient or those viewing it]". The importance of these considerations supports Lee et al.'s (2014) suggestion that self-presentation behaviour is present not only in posting, but also in users' response to content. Our research specifically adds evidence of users' awareness of self-presentation in image-based 'liking' behaviour. Therefore, whilst such an easy action to execute, the meaning behind a 'like' appears quite loaded and may have wider implications for how the user feels they are viewed by others. In this way, all of the content a user 'likes' helps to construct their digital profile, which may or may not accurately reflect their true character. A user might be influenced by social considerations to varying degrees, with highly influenced users carefully crafting their online persona to reflect their ideal self. For others, social considerations may only occasionally influence the 'liking' of particular posts; perhaps content seen as more controversial (e.g. political). Overall, users appear to be acutely aware of the publicness of their 'liking', regardless of the degree to which it subsequently alters their behaviour.

The variation in the manipulation of self-presentation between users has broad implications for our ability to understand each other online. The meaning of a 'like' becomes ambiguous as it is impossible to tell on which occasions people are purposefully constructing their image (and to what extent), versus instances when they are simply expressing their genuine appreciation. There are four goals that classify the way users approach self-presentation online: authenticity (reflecting the self with minimum artifice); polished presentation (crafting a specific, desired image of oneself); peacekeeping (presenting an image that does not "rock the boat" or offend others); and goal-neutral self-presentation

(denying active pursuit of self-presentation goals) (DeVito, Birnholtz, Hancock, French, & Liu, 2018). Each of these goals were represented within our data for 'liking', supporting the usefulness of paralinguistic digital affordances in meeting presentation goals.

It is recommended that further research examine 'liking' as a form of self-presentation more closely. This study suggests that users are aware that others see their 'likes' and that this may influence how they perceive the user. Future research should also examine the perceptions that others have when they encounter a friend's 'like' in order to determine whether 'liking' negative or positive content elicits congruent judgements from the viewer. The concept of selective self-presentation on social media raises some further interesting questions about the way we perceive our own identities. Ideal- and ought-selves were once abstract concepts, however through carefully crafted posts and 'likes' users create a living trail of evidence of whatever 'self' they choose to give life to. Given the established links between authentic online presentation and positive psychological outcomes (Grieve & Watkinson, 2016), it is important to establish whether users consciously apply paralinguistic digital affordances with the aim to project their authentic self, or to strategically reflect their ideal self.

Moreover, in exploring the ambiguity of paralinguistic digital affordances, it would be useful to test whether participants view their friend's 'likes' as genuine or strategic, and the factors that influence this judgement. Analysing the interpretation of others' 'likes' would extend the literature examining users as passive or critical consumers of what they view on social media. Previous literature has shown that passive use of Facebook (consuming information without direct exchanges with others; for example, scrolling through the feed) results in declines in well-being by increasing feelings of envy (Verduyn et al., 2015). It is possible that constructing an image of one's peers without being critical of their potentially

strategic use of ‘likes’ might also influence the way people judge and subsequently envy others, with the prospect of associated declines in well-being.

Supporting previous research (Brison et al., 2015), users also indicated awareness that their ‘like’ may represent endorsement of content; with one user showing how this could be used to their advantage by purposefully ‘liking’ animal advocacy images (that will presumably be perceived positively), knowing others will see their ‘like’. Relatedly, users expressed that liking an image represented supporting the image, its content, or the person posting the image, with an understanding that the poster would also interpret their like as support or encouragement. This consideration is consistent with Wohn et al. (2016) who found that the receipt of paralinguistic digital affordances (such as ‘likes’) can be associated with perceived social support.

In viewing ‘likes’ as a means of self-presentation, the added complexity that is afforded by Facebook’s five new ‘reactions’ should also now be considered (Stinson, 2016). The addition of further paralinguistic digital affordances beyond the relatively simple “like” function speaks to their value on Facebook, however a broader selection may have implications for the way they are used to shape others’ impressions. The present findings indicate the detailed considerations that influence simple ‘like’ clicking behaviour. Therefore it is possible that whilst allowing a nuanced form of self-expression, the extended range of reactions may also increase users concerns about how they come across to the audience when they use these functions. For example, rather than choosing not to ‘like’ content, users now have the ability to express negative feelings explicitly, as ‘sad’ or ‘angry’ paralinguistic digital affordances. There is now also the ability to distinguish between ‘liking’, ‘loving’, being amused (‘haha’), and surprised/impressed (‘wow’) by content. This allows for greater specificity in non-verbal Facebook communication, potentially reducing the ambiguity of ‘likes’. Alternatively, reactions provide opportunities for more targeted control over self-

presentation. For example, as well as 'liking' posts about animal advocacy, a user might also select an 'angry' or 'sad' paralinguistic digital affordance on posts opposing their view; cementing the impression that they would like to project. It is recommended that future research examine the way Facebook reactions add to the complexity of 'liking' for online self-presentation.

The most prominent considerations influencing 'liking' behaviour were friends and content appreciation. The importance of friends relates to Chin et al.'s (2015) 'compliance' motivation, where the identity of the poster influenced decisions to 'like'. Content appreciation is consistent with Chin et al.'s (2015) finding that hedonic motivation is the key motivator behind liking behaviour. Yet our data revealed two streams of responses regarding content appreciation: pure hedonic motivation where users expressed enjoying the image, versus perceiving the image was 'worthy' of their 'like'. The latter might be considered in terms of narcissism. Narcissistic individuals may feel that images have to earn their approval or compare to their own output in order to achieve public endorsement. Mindful of links between narcissism and self-presentation behaviour (Carpenter, 2012; Lowe-Calverley & Grieve, 2018; Ong et al., 2011), the narcissist may be particularly aware of how their 'like' will be perceived, whilst also not wanting to detract from their own content by appreciating others' content too much. Future research could further unpack the theme of content appreciation and determine whether these two streams of consideration deviate, and the potential role of narcissism.

Participants also considered how many others had already 'liked' an image, and whether they should join the crowd, suggesting users might engage in 'liking' behaviours to follow group consensus. Sundar (2008) examined how people determine the credibility of information on online sources and identified a 'Bandwagon Heuristic', whereby users follow the idea that "if others think this is [a good story], then I should think so too". This kind of

group-think behaviour, where one's views may be abandoned (or adapted) to follow those of the crowd, is suggested to be involved in the mass-liking that leads to viral content online (Coker, 2016). It is possible that while the user might appreciate the content, the behaviour of the group influences the act of hitting the 'like' button. This may occur with content for which liking would otherwise have not been overtly expressed – magnifying the extent to which the user appears to enjoy the content. Winter, Brückner, and Krämer (2015) found that a large number of 'likes' did not influence the way people evaluated a news story. However our research suggests that it may influence conformity in active 'liking' behaviour, particularly with regard to image-based content. Future research should examine the possibility that content 'liked' as a product of conformity may not meet the user's regular standards for liking, and study possible divisions between actual evaluations, and online expression through 'likes'.

The current findings also highlight the role of subjective norms (defined as perceived social pressures, see Ajzen, 1991). Subjective norms play a role in social media behaviours including intention to use social media (Al-Debei, Al-Lozi, & Papazafeiropoulou, 2013; Pelling & White, 2009), privacy protection intentions (Saeri, Ogilvie, La Macchia, Smith, & Louis, 2014), and partner monitoring on Facebook (Darvell, Walsh, & White, 2011). Subjective norms may alternatively explain users' conformity in 'liking' behaviour, particularly if those who already 'like' the image are family or friends. Further research should examine the effects of 'herd-like' 'liking' behaviour, and determine whether those already seen to be 'liking' the content have differential influence on conformity (e.g. close relationships [friends or family] versus distal relationships [strangers]).

3.7.1 Additional Considerations

As we sought to examine the unlimited spectrum of considerations that influence social media behaviours, the questions were purposefully broad – referring to 'social media'

rather than one specific platform – we consider this to be both a strength and potential limitation of the current study. The questions were designed to allow users to answer organically, and indicate whether differences between platforms were salient enough in their own use that they would feel the need to indicate this in their answer. Accordingly, social media platform did emerge as its own theme. Participants reported that different platforms were used in different ways, and as such, considerations differed depending on the location of the post. This is an important finding as it speaks to the nuanced nature of similar behaviours across different mediums. Knowledge of these differences should be used to inform future research of social media behaviour. Our findings support the value in comparing and contrasting between major social networking sites (for example, Phua, Jin, & Kim, 2017a, 2017b). We caution against assumptions that posting or 'liking' an image on different platforms represents analogous behaviour. Further, the ability to now choose between six Facebook reactions facilitates more specific one-click emotive communication (Stinson, 2016). It is possible that extending paralinguistic digital affordance specificity also changes the way people engage 'likes' on that platform. Therefore we highlight the likely utility of re-examining these questions separately for specific platforms.

Consideration of the way these themes might apply to different types of posts is also warranted. We chose to specifically focus on image-based communication, as images are a particularly popular medium of posting on social media (Aslam, 2018), however the same themes could theoretically also apply to text or video-based communications on the same platforms. Parallels between the messages that can be shared via text or pictures are clearly identifiable (for example, 'memes' might be considered the image-based version of humour communicated via text), therefore it is reasonable to suggest that many of the same concerns would apply to text based posts and 'likes'. For text posts the exceptions to this transferability may be the visual themes that emerged in the current research, such as

‘(physical) attractiveness’. However, in a textual context such ideas may translate loosely to themes focused on the semantic value and ‘attractiveness’ of the message being shared. Likewise, ‘image quality/composition’ may translate to a theme similarly capturing the quality of the message in terms of grammatical and written expression. To draw conclusions regarding the applicability of these themes across mediums it is recommended that future research undertake the same analysis using questions that examine text, video, or other kinds of posts.

3.7.2 Broader Implications

Posting and ‘liking’ are intricate processes. If a social media user is preparing to post an image, it seems likely that they will be cognisant of numerous factors beyond their own enjoyment of the image. Likewise, in the process of deciding whether or not to ‘like’ content, users may appraise the content to determine whether they find it to be enjoyable, before considering multiple social factors.

Lee et al. (2014) and Sumner et al. (2017) previously acknowledged the role of content response in online self-presentation. The current study adds to the literature by providing specific evidence of social media users being aware of the ability to manage others’ impressions through their image ‘liking’ behaviour on social media. Similarly, while Chin et al. (2015) broadly outlined the motivations behind ‘liking’ behaviour, the present study extended these findings with extensive analysis that also examined the emergent theme of egoistic motivations. At the forefront, this study demonstrated that each action, posting and ‘liking’, involves unique considerations, however central to both was the importance of the audience. The aesthetic component of the image and implications of posting were also crucial considerations in the posting of images, whereas appreciating the content and the interpretation of a ‘like’ influenced ‘liking’ behaviour.

Interestingly, this research shows that people place extensive consideration and

importance on a fairly simple action – essentially clicking a button. The importance of such a simple action alludes to the general importance of social media in people's lives. Where the online world and offline world may usually be considered separate domains, users seem to frequently consider the way one world connects with another, and the 'real world' implications of their online behaviour. This speaks more broadly to how extensively and intricately integrated social media has become in people's lives.

Finally, this research highlights some of the mechanisms by which social support is expressed on social media. Our data support Wohn et al.'s (2016) and Hayes et al.'s (2016b) finding that 'likes' can represent social support. Previous research has shown that Facebook use plays a role in the creation and maintenance of social capital (e.g. Grieve, Witteveen, Tolan, & Marrington, 2013). In demonstrating how users feel support is given, the current research also informs how social capital is derived online.

3.7.3 Conclusion

This study investigated the key considerations social media users have prior to posting or 'liking' an image online. Overall, we found that social media plays an important role in self-presentation, with egoistic considerations present prior to both posting and 'liking'. The value of social media for social purposes was also highlighted, with frequent considerations given to the audience and how a response to a post might affect the person posting (e.g. providing support). Finally, this study showed that a 'like' actually represents a like, with users indicating that they had to find the content enjoyable and worthy of their online appreciation before hitting the 'like' button. The themes identified in this study help to build social media theory and open a variety of avenues for further study into the antecedents and purposes of particular behaviours on social media. When considered broadly, this research demonstrates the importance of social media within peoples' lives. Uncomplicated,

every-day online behaviours come with a vast array of considerations and motivations, suggesting that they are not as inconsequential as simply clicking a button.

3.8 References

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PART 2.

Chapter 4, Paper 3:

A Risky Investment? Examining the Outcomes of Emotional Investment in Instagram

Emily Lowe-Calverley, Rachel Grieve, and Christine Padgett

4.1 Preamble

In Chapter Three we identified the complexity – and thus, potential stress – associated with image-based behaviours. Image-based behaviours were also shown to be important to self-presentation. It therefore follows that individuals are likely to become deeply invested in the content they post and the response they anticipate. Thus, leading on from Chapter Three, we saw the value in operationalising this investment – a construct we label 'Instagram Investment'. In the following chapters Instagram Investment is defined, operationalised, and factor-analysed, its utility as a predictor and mechanism of negative Instagram outcomes is tested (Chapter Four), and its personality predictors are determined (Chapter Five).

4.2 Abstract

Recent research demonstrates links between aspects of Instagram use and negative psychological outcomes. It is therefore important to be able to predict the users who may be at a greater risk of experiencing negative consequences as a result of their use. Instagram is an immersive platform and peoples' behaviour on Instagram can be important to their self-concept and self-esteem; users are potentially deeply emotionally invested in their Instagram use. This paper presents three studies investigating an Instagram-specific form of emotional investment – Instagram Investment. Study 1 (N = 167) examined Instagram Investment as a predictor of depression, anxiety, and stress, within a series of hierarchical multiple regression models, and demonstrated the potential utility of Instagram Investment for the prediction of depression and stress. In Study 2 (N = 120) we expanded our understanding of Instagram Investment within the context of self-esteem. A mediation model revealed an indirect effect of number of followers on self-esteem via Instagram Investment. Finally, in Study 3 (N = 259) we examined the structural properties of the 6 items used to measure Instagram Investment using a confirmatory factor analysis. Together, these studies demonstrate that Instagram Investment is a new and valuable construct for explaining the way that individuals are impacted by their use of Instagram.

Keywords: Instagram Investment, emotional investment, social media anxiety, social comparison, self-esteem

4.3 Introduction

Instagram is a popular mobile photo-sharing application that allows users to share their experiences with followers through photos and short videos. Recent research suggests users' overwhelming preference for Instagram as their favourite social media site; surpassing Facebook, Twitter, and 'other' sites (Shane-Simpson, Manago, Gaggi, & Gillespie-Lynch, 2018). This visually oriented platform facilitates the enhancement of photos through image-editing features that allow users to adjust individual aspects of their images (e.g., brightness/contrast) or apply a 'filter' to give an image or video clip a particular 'look' (e.g., a vintage sepia effect). The images users share can range from everyday 'selfies'- photographic self-portraits known to generate a lot of interest and follower response (Souza et al., 2015) - to sensitive self-disclosures where users share images that tell the story of negative feelings and vulnerabilities (Andalibi, Ozturk, & Forte, 2017). Instagram is used for social interaction (Lee, Lee, Moon, & Sung, 2015; Phua, Jin, & Kim, 2017a, 2017b; Shane-Simpson et al., 2018; Sheldon & Bryant, 2016; Sheldon, Rauschnabel, Antony, & Car, 2017); for self-promotion (Sheldon & Bryant, 2016; Sheldon et al., 2017); to document experiences (Sheldon & Bryant, 2016); and as a site for creative/self-expression (Shane-Simpson et al., 2018; Sheldon & Bryant, 2016). These uses suggest that Instagram is not merely an online photo album, but a vehicle for social connection, expression, and intimate communication via images. Therefore, it is possible that some users become deeply emotionally involved in their experiences on Instagram.

Compared to text-based social media, image-based applications have been associated with positive psychological and interpersonal outcomes, attributed to the increased intimacy facilitated by communication through images (Pittman & Reich, 2016). Pittman and Reich (2016) found that using image-based social media (Instagram and Snapchat) was related to decreased loneliness, and increased happiness and satisfaction with life, while no relationship

was present between text-based social media and psychological wellbeing. Meier and Schäfer (2018) revealed a link between social comparison and inspiration, with inspiration on Instagram positively related to positive affect. However, these positive outcomes are in contrast to an abundance of literature suggesting an association between various forms of Instagram use and negative psychological outcomes including depressive symptoms (Frison & Eggermont, 2017; Lup, Trub, & Rosenthal, 2015; Sherlock & Wagstaff, 2018), anxiety and low self-esteem (Sherlock & Wagstaff, 2018), tendency toward orthorexia (Turner & Lefevre, 2017), and body dissatisfaction (Brown & Tiggemann, 2016; Sherlock & Wagstaff, 2018; Tiggemann & Zaccardo, 2015). Instagram is potentially the most detrimental social network to a user's health and wellbeing (Wiederhold, 2018b). A number of studies suggest that the high degree of social comparison that users engage in on Instagram contributes to these negative outcomes (Brown & Tiggemann, 2016; Hendrickse, Arpan, Clayton, & Ridgway, 2017; Lup et al., 2015; Sherlock & Wagstaff, 2018). Popular women's magazines have identified a trend towards social comparison online, with one referring to it as the "compare and despair factor"; eluding to the tendency to make upward comparisons (Kuczynski, 2016). The tendency to "compare and despair" may be heightened as a product of the deep immersion that social networking sites (SNSs) afford; with continual notifications encouraging compulsive use, and the pressure to attract followers and carefully construct your online persona (Lowe-Calverley & Grieve, 2018; Stokes & Price, 2017). Image-based SNSs (e.g., Instagram) are a key location for visual branding and provide opportunities for peers to explicitly approve of the attractiveness of one's imagery (Stokes & Price, 2017).

4.3.1 Emotional Investment in Social Media

Given the links between Instagram use and negative psychological outcomes (Frison & Eggermont, 2017; Lup et al., 2015; Sherlock & Wagstaff, 2018), it is essential to define the conditions under which users may be more vulnerable to experiencing poor psychological

health. Examining emotional investment (defined here as a feeling of connectedness with a subject or object that evokes emotions) helps to provide additional detail of a user's experience of a platform beyond the information provided by the typically-used metrics of frequency of engagement or number of followers. The shortcomings associated with only examining frequency or duration of social media use were originally identified in the context of Facebook use. Ellison, Steinfield, and Lampe (2007) developed the Facebook Intensity Scale to address the emotional connectedness and daily integration of Facebook in a user's life. More specifically, emotional investment in the SNS context can be defined as caring deeply about social media, resulting in emotions being evoked in a user as a product of their use; for example, a user feels upset or disconnected when they are unable to access the site (Woods & Scott, 2016). Emotional investment in general social media use predicts poor sleep quality as a strong emotional connection to social media impacts upon sleep by increasing the user's levels of anxiety (Woods & Scott, 2016). We theorise that understanding emotional investment in the context of the Instagram platform may help to explain connections between Instagram use and deleterious psychological outcomes.

While it would be possible to easily adapt the measure of Facebook Intensity (Ellison et al., 2007) to Instagram, thereby providing insight into user's general levels of emotional connection with the Instagram platform, the unique characteristics of Instagram that are not shared with Facebook mean that such an approach would be unlikely to capture platform-specific affect. Compared to Facebook, where visual and textual content is posted and users regularly 'share' content that is not their own, the image-based, and gallery-style nature of Instagram provides an ideal site for self-presentation. Instagram users present their lives and construct their identities visually, learning what is accepted and valued by their peers through 'likes' and positive comments (Stokes & Price, 2017). Previous research has demonstrated reliable associations between receiving a greater number of likes and greater self-esteem

(Burrow & Rainone, 2017), thus it is likely that some users anxiously await the reaction to their posts. Given the importance of posting and response to a users' identity and self-esteem, it is possible that specific, negative emotions are elicited when Instagram users post and await responses: an Instagram-specific investment.

Number of followers also provides an important metric of peer approval and status and can be a factor in determining self-worth. According to qualitative findings from Chua and Chang (2016) higher or lower follower counts can result in users feeling accomplished and 'cool', versus inadequate, angry, and doubting their self-worth, respectively. Posting on Instagram is heavily driven by self-promotion and validation seeking (Dumas, Maxwell-Smith, Davis, & Giulietti, 2017). We believe a high following and high Instagram Investment are likely to coincide. Where Instagram users have a lower number of followers, they may take a more casual approach to their posting. However, where a user has a higher number of followers, we speculate that they may experience increased pressure to post content that their followers like (both in terms of appreciation and symbolically as 'likes'). It is also important to specify that our conceptualisation of Instagram Investment captures a rather unhealthy relationship with one's Instagram use, whereby posting elicits nervous anticipation, and external validation dictates the users' subsequent emotions. On contingencies of self-worth, Crocker (2002) argues that where we seek self-esteem is also where our self-esteem is particularly vulnerable. It is for this reason that we predict a negative relationship between Instagram Investment and self-esteem. Based on our understanding of the platform, we predict that the more followers a user has, the greater their Instagram investment is likely to be. We further propose that the level of Instagram Investment that a user experiences may be the mechanism by which one's following translates to effects on their self-esteem, with high Instagram Investment resulting in lower self-esteem.

4.3.2 The Current Research

This collection of studies explored the extent to which Instagram users are affectively involved in their posts, and the association between higher levels of Instagram Investment and key psychosocial outcomes including depression, anxiety, stress, and low self-esteem. The following studies are presented as per their chronological order in the research sequence. Following best practice, after performing the initial exploratory factor analysis in the process of item development and initial use, a secondary confirmatory factor analysis was conducted on a new sample to test the structural properties of the items (Henson & Roberts, 2006).

In Study 1 we investigated the incremental contribution of Instagram Investment to the prediction of negative psychological outcomes. Firstly, we distilled the relative importance and independent contributions of Instagram Intensity (adapted from Facebook Intensity; Ellison et al., 2007) and Instagram Investment. Additionally, we controlled for the influence of life satisfaction, a variable known to be negatively associated with depression, anxiety, and stress (Grieve & Watkinson, 2016; Mahmoud, Staten, Hall, & Lennie, 2012). Individuals who are more satisfied may experience less Instagram Investment as they are content with their lives and less concerned with external validation from others; alternatively, they may simply be confident in the self and life that their posts portray and the positive response they will receive from others. We hypothesised that investment in Instagram posts would predict depression (*H1*), anxiety (*H2*), and stress (*H3*), above and beyond the intensity of Instagram use and life satisfaction.

In Study 2, we aimed to determine the effect of Instagram Investment on the relationship between number of followers and self-esteem. We proposed that the more followers a user has, the more they experience posting-pressure and critically engage with their content. This may lead to users experiencing greater emotional investment in their content and potential audience response, in turn resulting in declines in their self-esteem. We therefore hypothesised (*H4*) that investment in Instagram posts would mediate the

relationship between number of followers and self-esteem, such that a greater number of followers on Instagram leads to higher investment, which subsequently leads to lower self-esteem.

In Study 3, the hypothesised single-factor structure of the final 6 Instagram Investment items was tested using confirmatory factor analysis.

4.4 Study 1

4.4.1 Method

4.4.1.1 Participants

The sample consisted of 167 Instagram users (130 female, 37 male) between the ages of 18 and 57 (M_{age} = 23.34 years; SD = 7.33)[8].

4.4.1.2 Design and procedure

Instagram users were invited to follow a link to an anonymous online survey. Participants provided informed consent prior to completing the survey items. Participants provided basic demographic information and indicated their engagement in a number of key Instagram behaviours on a scale from 1 (less than once a year) to 9 (more than once daily), to allow us to examine relationships between Instagram Investment and different aspects of Instagram use.

The analyses for Study 1 were three hierarchical multiple regressions, with the outcome variables depression, anxiety, and stress. Satisfaction with life was entered at Step 1; Instagram Intensity at Step 2; and Instagram Investment at Step 3.

4.4.1.3 Measures

[8] Participants for studies 1, 2, and 3 were recruited from the university population and general public, and reached via social media posts and posters around the university campus. There were no exclusion criteria for this research – the only requirement was that participants were Instagram users (of any volume).

4.4.1.3.1 Instagram Investment. The image-based nature of Instagram creates a unique environment where users visually construct their identities and engage in self-presentation. Therefore, to measure emotional connection to Instagram use, it is essential to reference key image-focused behaviours on the platform, and the affect that is connected with these behaviours. To capture this platform-specific affect, we firstly noted the behaviours and platform features relevant to active use of Instagram; including posting, awaiting response, receiving response, and using reach-expanding strategies such as hashtags and tagging to maximise response. We then generated nine questions to capture the potential emotional investment that users might experience when actively engaging with their own Instagram content. The items targeted thoughts, feelings, and reactions that a user may experience when preparing a post, posting, and anticipating responses on Instagram; maintaining distinctiveness from existing measures (e.g., Instagram Intensity) that, in contrast, capture overarching feelings of connectedness with the platform and community. Three items were reverse scored to minimise response sets. Participants responded to each item on a 7-point Likert scale from *strongly disagree* to *strongly agree*. A 7-point scale was chosen to allow greater variability in responses and maximise the probability of capturing participants' true experience of Instagram Investment. Higher scores indicate greater Instagram Investment (See Appendix A for item wording).

4.4.1.3.1.1 Testing the Instagram Investment Items. An exploratory factor analysis (maximum likelihood estimation method) was performed to test the validity of the 9 Instagram Investment items prior to their use. A sample of 315[9] Instagram-using Australian university students, of ages ranging from 18 to 68 years (M_{age}= 24.14 years; *SD* = 7.73), volunteered data for this analysis.

[9] Pilot data from 148 separate participants combined with the Instagram Investment item data from the 167 participants of Study 1.

Relevant statistical assumptions were tested; leading to the identification of potentially problematic items. A 'meritorious' Kaiser-Meyer-Olkin (KMO) value of 0.80 suggested that the factor analysis should yield distinct and reliable factors. Bartlett's test of sphericity was significant, χ^2 (36, N = 315) = 944.61, p < .001, confirming the presence of significant correlations between variables (Zygmont & Smith, 2014). The correlation matrix was examined to ensure that each item correlated with at least one other item above a coefficient of r = .3 (Tabachnick & Fidell, 2007). The correlation matrix suggested that item number three *'I feel confident when I post an image to Instagram'* may be problematic, as it failed to reach this threshold of correlation with any of the other items. Furthermore, it was noted that items eight, *'I use hashtags in an attempt to expand the reach of my images to a broader audience on Instagram'*, and nine, *'I tag other people/pages in an attempt to expand the reach of my images to a broader audience on Instagram',* attained this threshold, but were only correlated above r = .3 (r = .37) with each other, and item nine also correlated at this threshold with item six (r = .32). Overall, there was no evidence of multicollinearity or singularity (r >.85, Allen & Bennett, 2012) within the correlation matrix. Partial correlations were acceptably close to zero, with the exception of items one and two (-.377) and items eight and nine (-.385). Multiple correlations within the anti-image matrices exceeded the recommended .5 that demonstrates appropriate sampling adequacy (Field, 2013), with the exception of item eight at .478.

Based on the issues identified in meeting the statistical assumptions, items three, eight, and nine were assessed according to their theoretical value to the measurement of Instagram Investment in order to further justify their deletion or retention. Theoretically, items eight and nine related more to behaviours involved with Instagram posting and less with the emotional aspects of posting which are integral to this construct, therefore statistically and theoretically their removal was justified. One reverse coded item (item

three), related to feeling confident when posting, stands apart from the other items, which tap into potential negative feelings and anxiety. Therefore, given its potentially problematic statistical nature, item three was judged as not being relevant to the core objectives of this measure. Based on the statistical and theoretical evidence all three of these items were deleted from the scale.

4.4.1.3.1.2 The Final 6-Item Scale. The revised six-item scale was then tested and all relevant statistical assumptions were met; KMO = 0.82 (*meritorious*); Bartlett's test of sphericity, χ^2 (15, N = 315) = 801.59, $p < .001$; r <.85. One factor was identified with an eigenvalue greater than 1, accounting for 57.37% of the total variance. This result was confirmed in the scree plot, which clearly suggested the extraction of one factor. To be thorough and complete, both a single factor and a two-factor solution were attempted. The two-factor solution proved to be uninterpretable, with almost all items cross loading to both factors, confirming the appropriateness of a single factor solution; therefore, a single factor solution was retained. This resulted in a six-item scale with a very good final Cronbach's alpha value of α = .85. With the Study 1 sample, the final 6 Instagram Investment items again showed good reliability, α = .84. Please see 4.9 Appendix A for final scale items and factor loadings.

4.4.1.3.2 Instagram intensity. The six core emotional connectedness and integration items from Ellison et al.'s (2007) Facebook Intensity scale were adapted for relevance to Instagram, as per Alhabash and Ma (2017), for example, *'Instagram is part of my daily activity'*. Responses were provided on a 5-point scale ranging from *1 = strongly disagree* to *5 = strongly agree*. Cronbach's α = .88, indicated very good reliability, consistent with the previous Instagram adaption (Alhabash & Ma, 2017).

4.4.1.3.3 Satisfaction with life. The five-item satisfaction with life scale was used to measure global judgements of life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985).

Participants indicated their agreement with each item on a 7-point scale, from *1 = strongly disagree* to *7 = strongly agree*. The satisfaction with life scale demonstrated very good internal reliability with an alpha coefficient of $\alpha = .87$ (consistent with Diener et al., 1985).

4.4.1.3.4 DASS-21. Depression (e.g., *'I couldn't seem to experience any positive feeling at all'*), anxiety (e.g., *'I was aware of dryness in my mouth'*), and stress (e.g., *'I felt that I was using a lot of nervous energy'*) were measured using the 21-item version of the Lovibond and Lovibond (1995) Depression Anxiety Stress Scales. Answers were provided on a 4-point scale, with options *1 = did not apply to me at all, 2 = applied to me to some degree, or some of the time, 3 = applied to me a considerable degree, or a good part of the time, 4 = applied to me very much, or most of the time*. The reliability of the depression, anxiety, and stress subscales ranged from good to very good, with alpha coefficients of $\alpha = .92$, $\alpha = .88$, and $\alpha = .89$, respectively (consistent with Henry & Crawford, 2005).

4.4.2 Results

Descriptive statistics and intercorrelations between all variables are shown in Table 4.1. Participants indicated that they very regularly "like" other people's Instagram photos, check their own Instagram profile, and post images to their own profile. Less frequent engagement was indicated for commenting on others' images on Instagram, using Instagram during lectures/work, and viewing other people's stories (ephemeral picture or video posts) on Instagram. Participants indicated least engagement in sending direct messages on Instagram and adding their own 'stories' to Instagram. These statistics indicate that the sample comprised experienced and regular Instagram users. Notably, Instagram Investment was significantly correlated with checking one's own profile, $r\,(167) = .280$, $p < .001$; however, Instagram Investment was not significantly correlated with frequency of posting an image. The significant correlation with profile checking suggests that, consistent with our

operationalisation of Instagram Investment, it might not be how often the individual posts, but the reactions they anticipate and their monitoring of their posts and profile that may be emotionally salient.

Table 4.1

Instagram Investment Descriptive Statistics and Bivariate Correlations

	1	2	3	4	5	α	M	SD
1. Instagram Investment	-					.84	24.47	8.02
2. Instagram Intensity	.262**	-				.88	20.33	6.06
3. Depression	.248**	-.054	-			.92	5.87	5.09
4. Anxiety	.179*	.013	.698***	-		.88	4.97	4.80
5. Stress	.245**	-.029	.694***	.767***	-	.89	7.54	4.98
6. Satisfaction with life	-.081	.162*	-.593***	-.405***	-.410***	.87	23.32	6.44

Note. *p <.05; **p<.01; ***p<.001

4.4.2.1 H1-Depression

In Step 1 (see Table 4.2), satisfaction with life accounted for 35.2% of the variance in depression, $F(1,165) = 89.72$, $p < .001$. In Step 2, the addition of Instagram Intensity did not significantly improve the model, with a further 0.2% of the variance in depression explained, $F_{change}\ (1,164) = .47$, $p = .494$; with satisfaction with life remaining a significant determinant of depression. In Step 3, the addition of Instagram Investment significantly improved the model, accounting for an additional 3.9% of the variance in depression, $F_{change}(1,163) = 10.37$, $p = .002$; with the final model explaining 39.3% of the variance in depression. Satisfaction with life and Instagram Investment were both significant individual contributors to the final model. Satisfaction with life was negatively associated with depression, while Instagram Investment was a positive predictor of depression; such that the more invested users were the higher their likelihood of reporting depressive symptoms.

Table 4.2

Hierarchical analysis of depression

		B_{Step} 1 (95% CI)		B_{Step} 2 (95% CI)		B_{Step} 3 (95% CI)	
Intention							
Step 1							
	Satisfaction with life	-.47***	(-.57, -.37)	-.47***	(-.57, -.38)	-.45***	(-.55, -.36)
Step 2							
	Instagram Intensity			.04	(-.07, .14)	-.01	(-.12, .10)
Step 3							
	Instagram Investment					.13**	(.05, .21)
ΔR^2		.35		.00		.04	
ΔF		89.72***		0.47		10.37**	
Adjusted R^2		.35		.35		.38	
Model F		89.72***		44.95***		35.14***	

Note. *p<.05; **p<.01; ***p<.001

4.4.2.2 H2-Anxiety

In Step 1 (see Table 4.3), satisfaction with life accounted for 16.4% of the variance in anxiety, $F(1,165) = 32.40$, $p < .001$. In Step 2, the addition of Instagram Intensity did not significantly improve the model, with a further 0.06% of the variance in anxiety explained, $F_{change}\ (1,164) = 1.25$, $p = .265$. In this model, satisfaction with life remained a significant determinant of anxiety. In Step 3, the inclusion of Instagram Investment accounted for an additional 1.7% of the variance in anxiety, however this improvement was non-significant, $F_{change}(1,163) = 3.34$, $p = .070$. In the final model satisfaction with life was the only significant contributor within the model, indicating that the less satisfied an individual was, the greater their reported anxious symptoms. The final model explained 18.7% of the variance in anxiety.

Table 4.3

Hierarchical analysis of anxiety

		B_{Step} 1 (95% CI)		B_{Step} 2 (95% CI)		B_{Step} 3 (95% CI)	
Intention							
Step 1							
	Satisfaction with life	-.30***	(-.41, -.20)	-.31***	(-.42,-.21)	-.30***	(-.41, -.19)
Step 2							
	Instagram Intensity			.06	(-.05, .18)	.03	(-.08, .15)
Step 3							
	Instagram Investment					.08	(-.01, .17)
ΔR^2		.16		.01		.02	
ΔF		32.40***		1.25		3.34	
Adjusted R2		.16		.16		.17	
Model F		32.40***		16.85***		12.51***	

Note. *p<.05; **p<.01; ***p<.001

4.4.2.3 H3-Stress

In Step 1 (see Table 4.4), satisfaction with life accounted for 16.8% of the variance in stress, $F(1,165) = 33.26$, $p < .001$. In Step 2, the addition of Instagram Intensity did not significantly improve the model, with a further 0.01% of the variance in stress explained, $F_{change}\ (1,164) = .29$, $p = .593$; with satisfaction with life a significant determinant of stress. The further addition of Instagram Investment in Step 3 was significant, and accounted for an additional 4.4% of the variance in stress, $F_{change}(1,163) = 9.16$, $p = .003$. Both satisfaction with life and Instagram Investment contributed significantly to the model. Again, satisfaction with life was negatively associated with stress, while Instagram Investment was a positive predictor of stress; with higher investment predictive of higher reported stress. The final model explained 21.3% of the variance in stress.

Table 4.4

Hierarchical analysis of stress

		B_{Step} 1 (95% CI)		B_{Step} 2 (95% CI)		B_{Step} 3 (95% CI)	
Intention							
Step 1							
	Satisfaction with life	-.32***	(-.43, -.21)	-.32***	(-.43, -.21)	-.30***	(-.41, -.19)
Step 2							
	Instagram Intensity			.03	(-.09, .15)	-.02	(-.14, .10)
Step 3							
	Instagram Investment					.14**	(.05, .23)
ΔR^2		.17		.00		.04	
ΔF		33.26***		0.29		9.16**	
Adjusted R2		.16		.16		.20	
Model F		33.26***		16.70***		14.74***	

Note. *p<.05; **p<.01; ***p<.001

Overall, our results showed that satisfaction with life was the major predictor for all three outcomes. Greater life satisfaction was predictive of lower depression, anxiety, and stress – a finding that conforms with our understanding of these constructs. Instagram Investment was a significant predictor of depression and stress, and was close to being a significant predictor of anxiety. Finally, Instagram Intensity made a negligible contribution to the prediction of the three outcomes, suggesting that intensity of use does not have a substantial impact on symptoms of depression, anxiety, or stress.

4.5 Study 2

In Study 2 we investigated the mediating role of Instagram Investment on the relationship between number of followers and self-esteem. Based on observation of the platform, we posit that in a supply-and-demand manner, the higher the number of followers a user has, the more pressure the user is under to create content that their followers appreciate. Quality content is then reinforced with higher 'like' metrics and even more followers. Our operationalisation of Instagram Investment is intended to capture a users' attachment to their content and audience response. Given the external contingency that Instagram Investment

represents and its logical link with following, we predict that where number of followers impacts a user's self-esteem, it will occur via the mechanism of Instagram Investment, such that higher following predicts higher Instagram Investment, which in turn predicts lower self-esteem.

4.5.1 Method

4.5.1.1 Participants

There were 120 participants recruited for Study 2; 95 female and 25 male participants, with ages ranging from 17 to 62 years (M_{age} = 22.98 years; *SD* = 7.56).

4.5.1.2 Design and procedure

Instagram users provided informed consent prior to completing an anonymous online survey. Participants provided basic demographic information, their number of followers, and measures of Instagram Investment and self-esteem. A mediation analysis was performed using the PROCESS macro (Hayes, 2012) with number of Instagram followers entered as the predictor variable; Instagram Investment as the mediator; and self-esteem as the outcome variable.

4.5.1.3 Measures

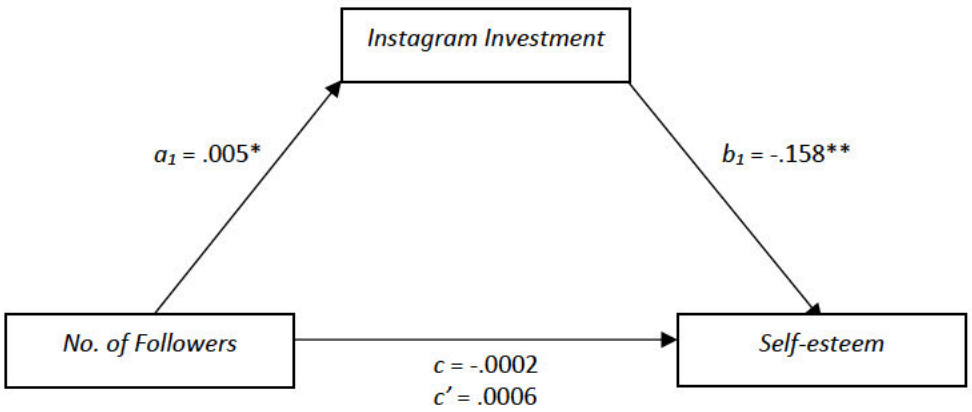
4.5.1.3.1 Instagram Investment. Participants completed the six items previously described in Study 1, α = .87.

4.5.1.3.2 Self-esteem. The 10 item Rosenberg Self-esteem Scale (Rosenberg, 1965) was used (e.g., *'On the whole, I am satisfied with myself'*). Responses were provided on a 4-point scale where *1 = strongly agree, 2 = agree, 3 = disagree, 4 = strongly disagree*. Five items were reverse scored, thus higher scores on the scale indicated higher levels of self-esteem. Very good reliability was evident, α = .88.

4.5.1.3.3 Number of Followers. Participants were asked to indicate the number of followers they have on Instagram via an open-ended question. Most users provided an exact numerical value, (e.g., 375), however some users provided an estimate (e.g., 'around 100', or '100-ish'). Where estimates were provided, these were coded to indicate an exact value. Therefore, a participant indicating 'around 100' was coded as having 100 followers on Instagram.

4.5.2 Results

Figure 4.1 shows the indirect effect of number of followers on self-esteem via Instagram Investment. Number of followers was a significant predictor of Instagram Investment (a_i pathway; p = .021), and Instagram Investment predicted self-esteem (b_i pathway; p = .003). Alone, number of followers was not a significant predictor of self-esteem (c pathway; p = .649), however the hypothesised indirect effect of number of followers on self-esteem via Instagram Investment (a_ib_i) was significant, as the bootstrapped 95% confidence intervals did not contain zero, although this was a small effect.



a_ib_i = -.001, 95% CI [-.0024, -.0002]

Figure 4.1. Mediation Model of Number of Instagram Followers on Self-esteem via Instagram Investment.
Note. * p<.05; **p<.01

4.6 Study 3

Studies 1 and 2 involved conceptualising and exploring the concept of Instagram Investment and how it relates to negative psychological outcomes. Finally, the purpose of Study 3 was to use confirmatory factor analysis to test the hypothesised single-factor structure of the Instagram Investment items.

4.6.1 Method

4.6.1.1 Participants

A total of 259 participants (210 female, 46 males, 3 other), with a mean age of 22.32 (*SD* = 6.08), participated in this study.

4.6.1.2 Design and procedure

Participants provided consent and completed the Instagram Investment Inventory, consisting of the 6 final items used in Studies 1 and 2. Items were scored on a 7-point scale from *1 = strongly disagree* to *7 = strongly agree*. A subset of 184 participants (155 female, 27 males, 2 other; M_{age} = 22.07*, SD* = 5.65*)* were asked to complete an additional measure of Instagram Intensity, scored on a 5-point scale from *1 = strongly disagree* to *5 = strongly agree*. Instagram Intensity was measured using the 6-item Instagram Intensity scale, derived from the original Facebook Intensity scale (Ellison et al., 2007). The Instagram Intensity scale once again demonstrated very good internal reliability with a current Cronbach's alpha statistic α = .85. The subset of 184 participants further responded to two independent questions regarding the volume of their Instagram engagement (*"How much time do you spend on Instagram each day, on average?*[10]*";* and *"How often do you post content to Instagram?*[11]*"*)

[10] With response options: *'up to 15 minutes'; 'between 15 and 30 minutes'; 'between 30 and 60 minutes'; 'between 1 hour and 2 hours'; 'more than 2 hours'.*
[11] With response options: *'rarely'; 'about once a month'; 'about once a week'; 'about once a day'; 'a couple of times per day'; 'three or more times per day'.*

4.6.2 Analyses

Confirmatory factor analyses were computed on AMOS using the full data set. Goodness of fit was calculated using the chi-square statistic, with non-significant values indicating an acceptable fit. However, the chi-square statistic is often considered to be flawed in its over-inflation when dealing with larger sample sizes. Therefore, widely used additional indices were examined in the assessment of model fit. As per recommendations from Jackson, Gillaspy, and Purc-Stephenson (2009) a combination of residuals based and incremental fit indices were examined. Both the Root Mean Square Error of Approximation (RMSEA), an index sensitive to misspecification of the factor 'loadings', and Standardised Root Mean Square Residual (SRMR), an index sensitive to misspecification of the factor 'covariances', were included for their complementary combination. RMSEA and SRMR values between 0 and 0.05 indicate a good model fit. The Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) are also commonly reported incremental indices for assessing model fit. A CFI > 0.95 and TLI > 0.95 can be interpreted as indicating an acceptable fit (Hu & Bentler, 1999). Lastly, for the data subset, bivariate correlations were calculated to evaluate the convergent relationship between Instagram Investment and Instagram Intensity, and to examine the relationship between Instagram Investment and individual items measuring volume of app engagement.

4.6.3 Results

We computed a single-factor model in which the 6 items of the Instagram Investment inventory were hypothesised as a unique latent factor representing emotional connection to Instagram use. The χ^2 of the single factor model was significant, $\chi^2(9) = 47.08$, $p < .001$, indicating poor fit (Model 1A, Table 4.5). The maximum modification indices were found between items 6 and 7. Thus we chose to let the errors of these two items covary because they are semantically very similar (both are related to a lack of response from followers/the

public on Instagram). The χ^2 of this new model again indicated poor fit (Model 1B, Table 4.5) $\chi^2(8) = 30.19$, $p < .001$. Modification indices were again examined, with the maximum found between items 2 and 4. Items 2 and 4 are similarly related to thoughts about possible response when posting an image to Instagram, therefore we chose to let the errors of these two items covary. The χ^2 of this new model (Model 1C, Table 4.5) was significant, $\chi^2(7) = 21.07$, $p = .004$, however the additional fit indices indicated an adequate model fit. Maximum modification indices suggested covariation of the errors for items 1 and 5, consistent with their theoretical relatedness based on feelings toward a post, therefore this alteration was included in a further iteration of the model. The χ^2 of this new model (Model 1D, Table 4.5, Figure 4.2) was non-significant, $\chi^2(6) = 6.85$, $p = .335$, indicating adequate model fit. For the other fit indices, we obtained a RMSEA = 0.023 and SRMR = 0.022. Their combination indicated a good fit. The CFI of 0.999 and TLI of 0.997 were further indicative of a well-fitting model. The final model yielded a Cronbach's alpha reliability coefficient of .84 indicating very good internal consistency, whilst not being so high as to suggest item redundancy.

Table 4.5

Fit indices of the confirmatory factor analysis: One factor model

Model	χ^2	*df*	*RMSEA*	*RMSEA 95% CI*		*SRMR*	*CFI*	*TLI*
				Low	*High*			
Model 1A	47.08***	9	0.128	0.093	0.165	0.051	0.941	0.902
Model 1B	30.19***	8	0.104	0.066	0.144	0.041	0.966	0.936
Model 1C	15.71*	7	0.069	0.022	0.116	0.033	0.987	0.971
Model 1D	6.85	6	0.023	0.000	0.087	0.022	0.999	0.997

Model 1D had the best fit and was retained.
Note. *p<.05; **p<.01; ***p<.001

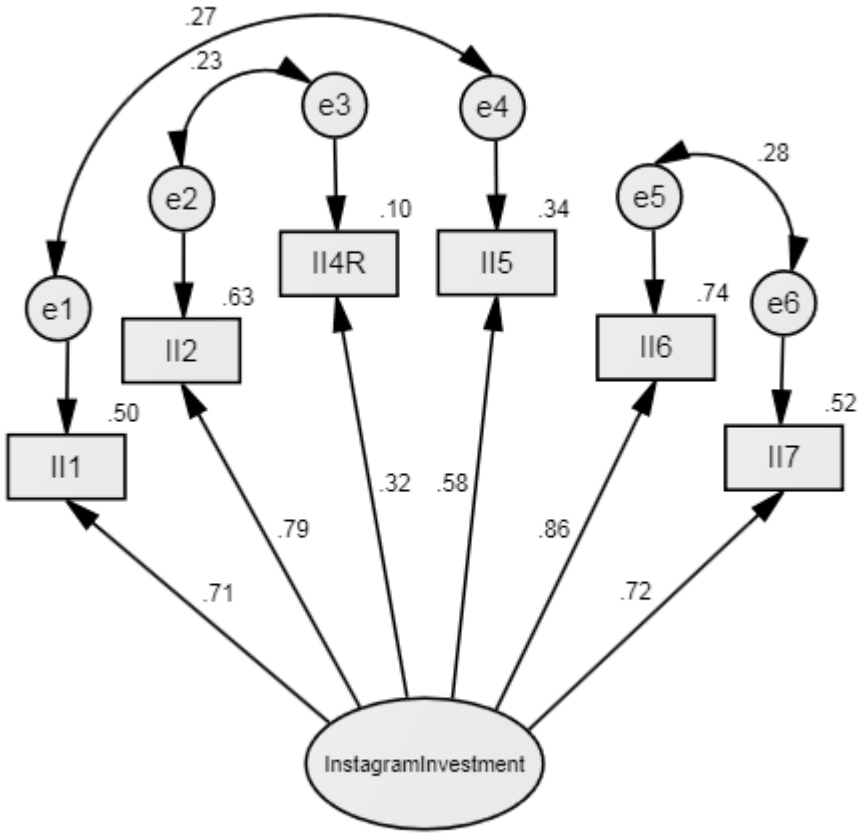


Figure 4.2. 6-Item Instagram Investment Inventory Confirmatory Factor Analysis

Correlational analyses revealed a positive, significant relationship between Instagram Investment, as measured by the 6-item Instagram Investment Inventory and Instagram Intensity, r (N = 184) = .34, p < .001, indicating convergent validity. Low to negligible relationships were found between Instagram Investment and daily time spent on Instagram, r (N =184) = .14, p = .054, and frequency of posting on Instagram, r (N =184) = 0.03, p = .709, respectively. The same variables were positively and significantly related to Instagram Intensity, r (N =184) = .51, p <.001, and r (N =184) = .28, p <.001, respectively. Supporting the conceptualisation of the construct, this finding once again suggests that while related, Instagram Investment and Instagram Intensity capture unique and separate aspects of Instagram use. Secondly, the relationships indicate that Instagram Investment can vary

independently to the volume of Instagram use, suggesting that it is possible for an individual to engage occasionally with Instagram yet still experience a high level of emotional connection to their Instagram use.

4.7 General Discussion

We explored the psychological outcomes for Instagram users who place greater emotional importance on their posts and responses received, that is, Instagram users who are more emotionally invested in their Instagram use. As predicted (*H1*; *H3*) Instagram Investment was significantly associated with depression and stress; whilst its association with anxiety (*H2*) was not supported within the present study. In no analysis was Instagram Intensity a significant contributor. Its negligible associations with depression, anxiety, and stress highlighted the differences between Instagram Investment and Instagram Intensity; connection focused Instagram Intensity, compared with the emotionally evocative Instagram Investment.

The results also indicated (*H4*) that Instagram Investment mediated the relationship between number of followers and self-esteem; a small effect, yet intuitive finding, as it follows that an individual would be more influenced by a situation when they are more heavily invested. Notably, number of followers alone was negligibly related to self-esteem ($r(N = 120) = -.016$)[12], suggesting an Instagram user's popularity is less important to their self-esteem when considered independently of how much they are emotionally connected to their use of the platform. This indicates that pressure associated with posting is compounded with the inclusion of Instagram Investment; the user may experience pressure to execute a perfect post when they have more followers, but individual differences in depth of care and concern

[12] There was a small, negative significant correlation between Instagram Investment and self-esteem, $r(N = 120) = -.264$, $p = .004$; and a small, positive, significant correlation between number of followers and Instagram Investment, $r(N = 120) = .210$, $p = .021$.

for posting on Instagram is the mechanism by which following translates to negative effects on self-esteem.

Overall, the findings demonstrate that when users are more invested in their posting, they may be more vulnerable to negative psychological implications. Within the broader cyberpsychology milieu, our results support and extend previous findings linking aspects of Instagram use to poor psychological outcomes (Brown & Tiggemann, 2016; Frison & Eggermont, 2017; Lup et al., 2015; Sherlock & Wagstaff, 2018; Tiggemann & Zaccardo, 2015; Turner & Lefevre, 2017).

The negative effects associated with Instagram Investment also align with our understanding of the expectation of social judgement on social media. Paralinguistic digital affordances (PDAs; e.g., 'likes') can be perceived as representing social support (Lowe-Calverley & Grieve, 2018; Wohn, Carr, & Hayes, 2016). With such a public and quantifiable form of validation readily viewed by other Instagram users, it is understandable that individuals may experience stress in anticipation of response, that is, tangible social judgement. Greater Instagram Investment may therefore exacerbate depression, stress, and low self-esteem through the expectation of negative evaluations from others, or (possibly even worse) a lack of response from others.

Theoretically, Instagram Investment may tap into a unique form of social anxiety, relevant in situations where an individual is anxious about inviting social judgement on social media. Alongside social comparison, Instagram Investment may prove to be a critical variable in determining the situations in which social media use is harmful as opposed to helpful. Further examination of Instagram Investment and social media anxiety; as well as determining the way that Instagram Investment fits into existing models of problematic social media use, for example, its place within internet addiction disorder (Wiederhold, 2018a), may prove to be valuable domains for future research.

4.7.1 Additional Considerations

Although our studies found significant relationships between investment in Instagram and poorer psychological outcomes, the effect sizes were small. Similarly, although we conceive Instagram Investment as an antecedent variable from a theoretical perspective, the cross-sectional nature of the studies mean that causation cannot be assumed. Thus, longitudinal examination of Instagram Investment and wellbeing constitutes an important agenda for future research in order to establish causality and tease out the mechanisms by which Instagram Investment influences psychological health.

Additionally, in Study 2, although some users provided a precise number of followers (presumably taken from checking their profile), others provided an estimation which was coded to the closest whole-number value. It is possible that this introduced noise into the data: future research might benefit from exact measurement of followers. Furthermore, although our predominantly female sample is likely representative of the Instagram user-base (Seligson, 2016), these findings should not be overgeneralised without additional research.

Finally, Study 3 is potentially limited by its lack of complementary measures to test the external validity of the scale. Additionally, the use of modification indices is sometimes criticised for capitalizing on chance and reducing the ability for the model to generalise to other samples and populations (e.g., MacCallum, Roznowski, & Necowitz, 1992). In defense of the present modifications, we argue that the minimum number of modifications were applied in a stepwise manner, and that each of the modifications were justified due to the conceptual and semantic similarities between the items.

4.7.2 Concluding Comments

In summary, these studies demonstrate the value in examining Instagram Investment as it relates to wellbeing, and provide a single-factor tool for the measurement of emotional connection to posts and audience response on Instagram. Instagram Investment contributed to

the prediction of depression and stress, and played a mediating role in the relationship between number of followers and self-esteem. By exploring Instagram Investment we can further understand the mechanisms by which social media influences psychological health, and may be better poised to identify Instagram users who could be at risk of experiencing declines in well-being.

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4.9 Appendix

Appendix A. Instagram Investment Inventory Items with EFA Factor Loadings on Retained Items

No.	Item	Factor 1
1	The response I get to an image on Instagram (likes and comments) affects the way I feel about the post.[iii]	.753
2	I feel anxious/nervous about the response I will receive when I post an image to Instagram.[iii]	.782
3	I feel confident when I post an image to Instagram*	-
4	I do not consider the response I will receive when I post an image to Instagram.*[iii]	.548
5	I like my own images more when they receive a positive response (likes and comments) from my followers/the public on Instagram.[iii]	.567
6	A lack of response from my followers/the public on Instagram (few likes/comments) negatively influences my mood.[iii]	.841
7	A lack of response from my followers/the public on Instagram (few likes/comments) can change the way I feel about the subject matter of an image/the event featured in my image.[iii]	.689
8	I use hashtags in an attempt to expand the reach of my images to a broader audience on Instagram	-
9	I tag other people/pages in an attempt to expand the reach of my images to a broader audience on Instagram	-

Note. * = reverse scored items; iii = items retained in the final 6-item Instagram Investment Inventory

Chapter 5, Paper 4:

Profiling the invested Instagram user: Personality predictors of Instagram Investment

Emily Lowe-Calverley and Rachel Grieve

5.1 Abstract

Little is known about the characteristics of the 'invested' Instagram user. This study addressed this gap in the literature by measuring the emotional investment users experience regarding their posts on Instagram and examining the personality traits that predict investment. It was hypothesised that greater investment in ones' Instagram posts would be positively predicted by neuroticism, due to the anxiety captured by greater investment; and negatively predicted by honesty/humility, as more honest and humble users should be less concerned about their appearance and the response they receive from others. Participants (N = 136) completed an anonymous online survey, where they responded to questions regarding Instagram Investment and measures of the Big 5 and honesty/humility. A hierarchical multiple regression with the Big 5 in Step 1, and honesty/humility in Step 2, produced two significant models, accounting for 14.2% and 25.7% of the variance in Instagram Investment respectively, and confirming our hypotheses with significant individual contributions from both neuroticism and honesty/humility. The findings help to explain the type of social media user who would experience greater investment in their Instagram posts. Further, the link found between neuroticism and emotional investment suggests that there may be negative implications (e.g., increased anxiety) among frequent Instagram users who experience a deeper investment in their posts.

5.2 Introduction

Social networking sites play an important role in communication (Sosik & Bazarova, 2014). Therefore, research has endeavoured to determine the kinds of people who engage with social media by investigating the influence of psychological factors such as personality traits on social media uses and gratifications. Previous studies have often utilised the 'Big Five', a model of personality comprising the dimensions of Extraversion, Agreeableness, Openness (or Intellect), Conscientiousness, and Neuroticism (Liu & Campbell, 2017). Extraversion is positively related to general social media usage (Annisette & Lafreniere, 2017), and shows positive links with a variety of individual social networking factors (number of friends, posting photos, and interaction) (Liu & Campbell, 2017). Further research suggests that introversion, low conscientiousness, agreeableness, and neuroticism are associated with problematic social media use (Kircaburun, Alhabash, Tosuntaş, & Griffiths, 2018). Problematic social media use is also positively associated with the 'dark' traits: Machiavellianism and narcissism (Kircaburun, Demetrovics, & Tosuntaş, 2018). Other specific aspects of social media use that have been investigated include a user's involvement in the feedback (comments and 'likes') they receive on social media. Here, agreeableness, conscientiousness, and neuroticism are all positively associated with concern for the feedback one receives on their social media selfies (Choi, Sung, Lee, & Choi, 2017).

While Facebook is still the most used of the social media platforms, Instagram's increasing popularity is testament of the changing nature of communication and the growing importance of images in online discourse (Katz & Crocker, 2015; Rainie, Brenner, & Purcell, 2012). A simple and efficient platform, Instagram allows users to take and post a photo to their Instagram profile, with in-built filters and photo editing capabilities also facilitating the perfection of pictures in one quick process from a smart-phone. The key difference between Facebook and Instagram is Instagram's focus on visual communication, with images and

short videos the only content that can be posted, accompanied by often minimal text. In contrast, while images are a common form of post on Facebook, users can also upload textual status updates, as well as links, and sharing others' content.

Recent research has started to examine links between aspects of Instagram use and personality factors. Instagram addiction, capturing the negative social effects and compulsion that users may experience with respect to their Instagram use, correlates negatively with agreeableness and conscientiousness, and positively with neuroticism (Kircaburun & Griffiths, 2018). Interestingly, research has also suggested that posting selfies to Instagram is not indicative of narcissism (Barry, Reiter, Anderson, Schoessler, & Sidoti, 2019); however, weak to moderate ($r = 0.39$, $r = 0.25$, respectively), significant positive correlations can be found between vulnerable narcissism and Instagram attitudes (e.g., indicating that being recognised as intellectual or attractive on Instagram is very important), and frequency of Instagram behaviours (e.g., using hashtags or posting photos of impressive events) (Paramboukis, Skues, & Wise, 2016).

The popularity of the Instagram app has also opened the way for new research into the potential ramifications of its use, including associations with depression/ depressive symptoms (Hernandez & Smouse, 2017; Hunt, Marx, Lipson, & Young, 2018; Sherlock & Wagstaff, 2018); changes in affect (de Vries, Möller, Wieringa, Eigenraam, & Hamelink, 2018); and appearance-related concerns (Fardouly, Willburger, & Vartanian, 2018). Less studied are the feelings that Instagram users experience when posting, and the extent to which they are emotionally invested in the images they post and the responses they receive. The feedback (likes and positive comments) that users receive on their content is very important, particularly for teenage girls with low self-esteem (Li, Chang, Chua, & Loh, 2018). Feedback on Instagram can be treated by users as a key performance indicator (KPI). and when this feedback is lacking, may contribute to stress (Li et al., 2018). Placing great importance on

selfie feedback may also contribute to depressed mood (Li et al., 2018). Evidently, emotional investment in posting and feedback may be a key mechanism by which Instagram use results in negative psychological effects, necessitating further research in this domain.

5.2.1 Instagram Investment

Instagram Investment is a construct that captures the depth of emotional investment users have in their posts to Instagram (Lowe-Calverley, Grieve, & Padgett, Chapter 4). This construct captures the maladaptive side of investment, with highly invested users indicating more worry and negative affect aroused in the process of posting and awaiting or receiving feedback. The negative feedback users receive on Instagram can threaten their self-worth and result in negative affective responses (Jackson & Luchner, 2018); it therefore follows that posting content on Instagram may be an emotionally arousing process. Instagram Investment acknowledges the feelings and stresses that users can experience when posting and awaiting response, and aims to measure these along a continuum, with those highest in Instagram Investment representing those most emotionally affected by the process of Instagram use (Lowe-Calverley et al., Chapter 4). Like Facebook Intensity, a measure of emotional connectedness and life integration with Facebook (Ellison, Steinfield, & Lampe, 2007), Instagram Investment provides a more detailed examination of social media and richer information than simple measures of frequency and duration. In examining this construct, Lowe-Calverley et al. (Chapter 4) found relationships between Instagram Investment and negatively valanced constructs including significant positive correlations with depression, anxiety, stress, and low self-esteem, as well as significant contributions to the prediction of depression and stress. These associations may reflect the pressures involved in posting, and anticipation of a lack of, or negative, response from followers. Given the links found with negative psychological experiences, possessing high levels of Instagram Investment may represent a subtype of, or risk factor for problematic social media use, usually indicated by

the presence of symptoms of addiction (Bányai et al., 2017). This study therefore aimed to uncover the personality traits that may predict higher levels of Instagram Investment, with a view to understanding the construct and discovering information that may help to identify individuals who are more prone to experiencing negative consequences as a product of their deep investment in their Instagram use.

5.2.2 Possible Predictors of Instagram Investment

The Big Five is the dominant taxonomy of broad personality traits, and an appropriate starting point in examining the individual differences that predict Instagram Investment (Anglim & O'Connor, 2019). Of the Big Five traits, neuroticism appears to be particularly well-suited to the prediction of Instagram Investment. Like more general internet use (Ebeling-Witte, Frank, & Lester, 2007), Instagram may provide another avenue for social interaction for those who find face-to-face social interactions threatening. However, the pressures of posting and anticipating response from followers may antagonise anxiety, self-consciousness and fears of social rejection and scrutiny; all conditions experienced by individuals high in neuroticism (Chan, 2014). Instagram Investment is a construct designed to determine those who are most emotionally affected by the process of posting and awaiting responses to images on Instagram (Lowe-Calverley et al., Chapter 4). It is therefore possible that higher levels of investment would be found among those who already possess a high degree of emotional reactivity, as captured by neuroticism. On the opposite pole, those who are low in neuroticism demonstrate greater emotional stability and are less reactive to stress. For Instagram users low in neuroticism, this might mean that although they experience some level of stress associated with posting in the moment, it does not manifest in a way that causes any major changes in their experience of emotions.

An alternative personality taxonomy is the HEXACO model – consisting of six dimensions. Lexical studies in non-English languages support a six-factor model of

personality, including: honesty-humility, emotionality, extraversion, agreeableness, conscientiousness, and openness (Anglim & O'Connor, 2019). Some studies have argued for the use of the HEXACO model rather than the Big 5 to provide a more comprehensive examination of personality structure (Ashton, Lee, & de Vries, 2014; Ashton et al., 2004; Lee & Ashton, 2004). Though honesty-humility, the most notable departure from the five-factor model, can also be used as a single scale in combination with the Big Five, where this trait is of particular relevance (Anglim & O'Connor, 2019). Honesty-humility is characterised by sincerity, fairness, greed avoidance and modesty at its high pole, contrasted with dishonesty, fraud, greed, and feelings of self-importance on its low pole. We argue that low honesty-humility relates conceptually to egoism; an excessive concern for the self, and a characteristic inherent in online behaviour (Lowe-Calverley & Grieve, 2018). The greed that characterises lower levels of honesty-humility also indicates that low honesty-humility individuals place a large value on possessing and flaunting signs of high social status (Ashton et al., 2014). We predict that this dimension of honesty-humility will particularly inform its negative relationship with Instagram Investment.

Higher levels of Instagram Investment represents a concern for the response you receive on the platform in the form of 'likes', paralinguistic digital affordances to which users ascribe the meaning of social support (Wohn, Carr, & Hayes, 2016). More 'likes' may be perceived as more social support and greater popularity and status. Therefore, a user who is more interested in signs of social status may be more concerned with how they are viewed by others and therefore more affected by the pressures of posting and the responses they receive from others. This means that a low honesty/humility Instagram user may experience more investment in the process of posting, compared to a high honesty/humility user who possesses greater modesty and greed-avoidance and is less concerned with obtaining 'likes' from their followers.

5.2.3 The Current Research

The present study explored the personality traits that predict 'Instagram Investment': emotional investment in one's posts on Instagram. In examining personality, the present study sought to determine if specific traits may relate to an individual being more vulnerable to experiencing a deep investment in their Instagram posts. This was achieved by examining the Big Five model traits of extraversion, conscientiousness, intellect, neuroticism, and agreeableness; and the further addition of honesty-humility from the HEXACO model. Given the links that have been found between Instagram Investment and negatively valanced constructs (e.g., depression, anxiety, and low self-esteem; Lowe-Calverley et al., Chapter 4) it is important to determine the antecedents of Instagram Investment. High levels of Instagram investment may indicate that a user is more susceptible to potentially problematic outcomes as a product of their Instagram use. By understanding the traits that predict investment it may be possible to identify at-risk users and educate them in a manner that helps to mitigate negative effects. As there is little research examining Instagram Investment, the established Big 5 model of personality is a logical starting point to help explain this aspect of social media behaviour.

5.2.3.1 The Emotional Stability Hypothesis. The Instagram Investment items capture the feelings and anxiety that may be associated with sharing images of one's life and self with the world and the expectation of either positive or negative social judgement in the form of likes and comments (or lack thereof). We expected that neuroticism would be a significant predictor of higher levels of Instagram Investment, as individuals with higher levels of neuroticism experience greater anxiety, self-consciousness, and fear of social scrutiny (Chan, 2014). These characteristics may be provoked through the act of posting to Instagram.

5.2.3.2 The Modesty Hypothesis. In addition, we predicted that the inclusion of honesty in the model would contribute to the prediction of Instagram Investment beyond that which is explained by the Big 5 personality traits. Instagram provides a platform for individuals to post and invite response, with more 'likes' representing greater popularity of the image or individual posting. On a platform where users seek public encouragement and affirmation through paralinguistic digital affordances that represent social support, it seemed necessary to capture the contribution of honesty/humility over and above the Big 5 traits. Honesty/humility uniquely captures modesty, a trait that would seem relevant in a context that may be seen as conceited: posting perfected images to gain maximal response. We predicted that the modest and greed-avoiding nature of those high in honesty/humility would mean that they would be less concerned about their appearance, attaining status, and the judgement they receive from others when posting to Instagram, therefore relating negatively to Instagram Investment.

5.3 Method

5.3.1 Participants

The sample comprised 136 Australian participants (108 female, 28 male) who identified as Instagram users. The age of participants ranged from 17 to 66 years (M_{age}= 23.29 years; *SD* = 8.31). The participants were recruited via posters and social media (Facebook) posts, inviting participation from any individuals with experience using Instagram.

5.3.2 Design and Procedure

Participants were invited to follow a link to Survey Monkey, where they provided informed consent prior to completing an anonymous survey comprising measures of The Big 5 personality traits and honesty/humility.

The study was correlational. A hierarchical multiple regression analysis was used to allow for shared variance between the predictors, and enable observation of the incremental contribution of honesty/humility above and beyond the Big 5 personality traits. The Big 5 personality variables (extraversion, agreeableness, conscientiousness, neuroticism, and intellect) were entered at Step 1; honesty/humility was entered at Step 2. Instagram Investment was the outcome variable.

5.3.3 Measures

5.3.3.1 The Big 5. Chosen for its conciseness, the 20 item mini-IPIP (International Personality Item Pool; Donnellan, Oswald, Baird, & Lucas, 2006) was used to measure extraversion (e.g., 'I am the life of the party'), Cronbach's α for the current data was α = .80; agreeableness (e.g., 'I sympathise with others' feelings') α = .73; conscientiousness (e.g., 'I get chores done right away') α = .57; neuroticism (e.g., 'I have frequent mood swings') α =.63; and intellect/imagination (e.g., 'I have a vivid imagination') α =.74. Participants were asked how well each statement described them, and responded on a 5 point scale from *1 = not at all well*, to *5 = very well*.

5.3.3.2 Honesty/Humility. The 10 honesty/humility scale items from the HEXACO-60 were used to assess honesty (e.g., 'I wouldn't use flattery to get a raise or promotion at work, even if I thought it would succeed') (Ashton & Lee, 2009). Participants responded to items on a 5 point scale from *1 = strongly disagree* to *5 = strongly agree*. The honesty subscale of the HEXACO-60 was reliable with an alpha coefficient of α = .76 in the current study.

5.3.3.3 Instagram Investment. The six item Instagram Investment Inventory was used to measure emotional investment in Instagram posts (Lowe-Calverley et al., Chapter 4) (e.g., 'I feel anxious/nervous about the response I will receive when I post an image to Instagram'). Participants responded to items on a 7 point scale from *1= strongly disagree* to *7*

= *strongly agree*. Higher scores indicate greater investment in posts on Instagram. The internal reliability for Instagram Investment was α = .86.

5.4 Results

Means, standard deviations and correlations are shown in Table 5.1. As displayed in Table 5.1, neuroticism and honesty were the strongest correlates of Instagram Investment.

Table 5.1

Descriptive statistics and bivariate correlations for Instagram Investment and dimensions of personality

	1	2	3	4	5	6	α	M	SD
1. Instagram Investment							.86	22.58	8.64
2. Extraversion	.013						.80	12.31	3.67
3. Agreeableness	-.018	.139					.73	15.85	3.00
4. Conscientiousness	.024	.001	.243**				.57	13.92	2.79
5. Neuroticism	.323***	-.126	.043	-.097			.63	12.47	3.12
6. Intellect	-.163*	.167*	.273[a]	-.021	.013		.74	15.27	2.96
7. Honesty	-.395***	-.103	.298***	.155*	-.151*	.169*	.76	34.44	6.70

Note. [a] = .001; *p <.05; **p<.01; ***p<.001

In Step 1, the Big 5 variables accounted for 14.2% (adjusted R^2 = .109) of the variance in Instagram Investment, $F(5, 130) = 4.31$, $p = .001$. Of the five personality variables, neuroticism and intellect (also referred to as imagination) contributed significantly to the model: neuroticism $t(130) = 4.14$, $p < .001$, intellect $t(130) = -2.09$, $p = .039$ (Table 5.2). In Step 2, honesty/humility accounted for an additional 11.5% of the variance in Instagram Investment, $F_{change}(1,129) = 19.94$, $p < .001$, with neuroticism, $t(129) = 3.50$, $p = .001$, and honesty/humility, $t(129) = -4.47$, $p < .001$, revealed as significant determinants. The final model explained 25.7% of the variance in intentions (adjusted R^2 = .223).

Table 5.2

Hierarchical analysis of Instagram Investment and dimensions of personality

	B_{Step} 1 (95% CI)		B_{Step} 2 (95% CI)	
Intention				
Step 1				
Extraversion	.20	(-.19, .59)	.04	(-.33, .41)
Agreeableness	-.03	(-.53, .48)	.27	(-.22, .76)
Conscientiousness	.17	(-.35, .69)	.26	(-.23, .74)
Neuroticism	.95***	(.50, 1.40)	.76***[a]	(.33, 1.19)
Intellect	-.52*	(-1.02, -.03)	-.38	(-.85, .08)
Step 2				
Honesty/Humility			-.48***	(-.69, -.27)
ΔR^2	.14		.12	
ΔF	4.31[a]		19.94***	
Adjusted R2	.11		.22	
Model F	4.31[a]		7.44***	

Note. [a] = .001; *p<.05; **p<.01; ***p<.001

5.5 Discussion

A new construct in the understanding of Instagram use, Instagram Investment has been associated with negative psychological outcomes including depression, anxiety, stress and low self-esteem (Lowe-Calverley et al., Chapter 4). With links to undesirable psychological experiences it is essential to examine the individual differences that can help to predict higher levels of Instagram Investment. This knowledge may facilitate the

identification of at-risk Instagram users and create the opportunity for targeted education or invention in order to enhance user wellbeing. This was the first study to examine the personality traits that may be related to higher levels of Instagram Investment.

As predicted by the emotional stability and modesty hypotheses, greater investment in one's Instagram posts was positively predicted by neuroticism, and negatively predicted by honesty/humility. The findings align with our theoretical understanding of each of the key constructs according to their measurement using the mini-IPIP and HEXACO. Neuroticism captures the anxiety present in individuals with high levels of investment, while honesty/humility captures individuals with greater levels of modesty and greed avoidance, who may be less concerned with the images they post and responses they receive.

As well as the expected role of neuroticism as an individual predictor in the first step of the model, intellect/imagination also contributed significantly to the prediction of Instagram Investment. Intellect became less important (and a statistically non-significant predictor) to the prediction of Instagram Investment when honesty/humility was added to the model. The contribution of honesty/humility suggests that low Instagram Investment is associated with higher levels of modesty, sincerity, fairness and greed avoidance. The importance of honesty/humility to the prediction of Instagram Investment informs our understanding of the Instagram platform and those who are deeply emotionally invested in its use. These findings suggest that investment in Instagram is associated with desiring attention and seeking status or recognition.

Consistent in the prediction of Instagram Investment in both Step 1 and the final model, was neuroticism. Neuroticism in the mini-IPIP is characterised by anxiety and lack of emotional stability (Donnellan et al., 2006). These concepts align with high levels of Instagram Investment, which describes a state of deeply caring about posts and the reactions received from others, that may cause an individual to experience stress. The image-based

nature of Instagram is likely to make it a high-pressure environment. Users post images that are personally relevant and use these images to help shape their identity and self-concept (Stokes & Price, 2017). Posting these personal images, that display the user as they wish to be seen, invites others to provide quantitative and qualitative social judgement in the form of 'likes' and comments. An environment that facilitates social comparison is also created through the posting, viewing, and direct comparison of users' imagery, with social comparison frequently found to be the mediator by which aspects of Instagram use relate to problematic outcomes such as reduced mood and body dissatisfaction (Brown & Tiggemann, 2016; Sherlock & Wagstaff, 2018). Instagram investment specifically captures users for whom these pressures are likely to be amplified, with links to increased self-reported stress (Lowe-Calverley, Grieve, & Padgett, Chapter 4). The present finding supports our reasoning that the anxious trait of neuroticism is related to this deeply invested state of Instagram engagement, where the pressures of the platform are more salient. Further research should examine Instagram and Facebook more closely to determine whether, as we suspect, Instagram presents a comparatively higher-pressure environment for individuals when posting and anticipating responses than Facebook does, as a product of its image-based nature.

Overall, this research demonstrates the utility of personality in the prediction of Instagram Investment. With significant contributions from neuroticism, intellect, and honesty/humility, it is clear that personality plays a role in the different ways individuals experience social media. Specifically, these traits allow for the prediction of individuals who are more likely to become deeply invested in their use of Instagram.

5.5.1 Additional Considerations and Limitations

Given the nature of Instagram, involving the perfecting and publicising of images, honesty/humility presented as a relevant construct in order to provide a thorough analysis of

Instagram Investment. To measure honesty/humility, the relevant items from the HEXACO were used. In an attempt to increase efficiency and decrease fatigue, the mini-IPIP was used to provide a measure of the Big 5. While these are well validated measures of the constructs, their use may be considered both a strength and weakness of the current study. Using these measures only allow these characteristics to be measured at a broad-brush level. Via use of the mini-IPIP, participants were subjected to considerably fewer questions, however, longer measures that allow the facets of these personality traits to be examined would provide a more detailed examination of these relationships. In looking at one aspect of the HEXACO, it may be also considered worthwhile to use the entire HEXACO measure to examine all of the Big 5 traits, however recent research supports the approach of adding the honesty/humility scale in addition to a measure of the Big Five to improve prediction and yield novel insights (Anglim & O'Connor, 2019). When examining our results it is also important to be mindful of the differences between Big 5 measures and the HEXACO, for example overlap between some aspects of agreeableness and honesty/humility, and the theoretical differences between intellect, as measured by the mini-IPIP, and openness to experience (HEXACO); and neuroticism (mini-IPIP) and emotionality as measured by the HEXACO (Ashton & Lee, 2009). Given that this is the first research to examine personality and Instagram Investment we chose to focus on the dominant Big Five taxonomy. However, it may be valuable for future research to examine the 'aesthetic appreciation' aspect of openness from the HEXACO, given the visual nature of the Instagram platform.

Furthermore, research should examine Instagram Investment in the context of other individual difference characteristics. As research has suggested that high levels of Instagram Investment may be problematic (Lowe-Calverley et al., Chapter 4), it would be valuable to examine links to constructs such as wellbeing and satisfaction with life. Previous research suggests no direct relationship between social media addiction and life satisfaction (Hawi &

Samaha, 2017), and similarly negligible correlations have been reported between Instagram investment and life satisfaction (Lowe-Calverley et al., Chapter 4). This may be because social media, and Instagram more specifically, is only one aspect of an individual's life that is considered when determining a broader sense of quality of life. However social media addiction can impact life satisfaction via self-esteem (Hawi & Samaha, 2017). Instagram investment may influence life satisfaction via similar mechanisms. These models therefore warrant exploration. Additionally, the investigation of other personality traits may add further insight into the nature of Instagram Investment. Given the antithetic nature of humility and narcissism, a positive relationship between Instagram Investment and narcissism would be intuitive, however relationships with other Dark Triad traits would also be useful to explore.

The present study was a small exploratory study with 136 participants taken from a broad demographic in order to provide preliminary data on an emerging topic of research. Further research should be performed with a larger quantity of participants and narrower demographics to determine how the mechanisms behind Instagram Investment vary from group to group. The current study also targeted a wide range of ages to attain data from a broad cross section of Instagram users. In future it may be useful to narrow the focus of this research, particularly to the 18-29 year age group, who account for 53% of the platforms user-base (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Finally, it is important to highlight that 79% of the participants were female, therefore caution should be exercised when generalising these results.

This value of the present study lies in its ability to help define the personality profile of an individual more likely to become deeply emotionally invested in their Instagram use. This study revealed that such an individual might be low in honesty/humility and high in neuroticism. The links between high Instagram Investment and negative psychological outcomes (Lowe-Calverley et al., Chapter 4) suggest that high investment may be

problematic. Highly emotional users with a desire for status may be more vulnerable to problematic Instagram use. This knowledge may be applied to identify those at risk of over-investment and its potentially damaging bi-products. If vulnerable individuals are provided with social media education, they may be able to self-monitor their Instagram use and prevent negative effects. Additionally, given the cross-sectional nature of previous research (Lowe-Calverley et al., Chapter 4), it is equally plausible that depression, anxiety, and stress are predictors (rather than outcomes) of high Instagram Investment. Future research should examine Instagram Investment in combination with both personality factors and negative psychological outcomes in order to establish the nature of these pathways.

5.5.2 Conclusions

This study is the first to consider the personality traits that predict higher levels of Instagram Investment. Neuroticism and honesty/humility proved valuable in the prediction of Instagram Investment in the final model. Previous research has suggested links between a deep emotional connection with Instagram posting and negative psychological experiences including depression, anxiety, stress and low self-esteem, therefore an understanding of the predictors of this variable may provide insight into the antecedents of problematic social media use.

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Chapter 6, Paper 5:

Do the metrics matter? The effect of Influencer versus Peer Popularity on Mood and Body Dissatisfaction

Emily Lowe-Calverley and Rachel Grieve

6.1 Preamble

Continuing the theme of examining the effects of Instagram use on psychological outcomes, Chapter Six addresses the second core area of focus within this thesis: providing an initial experimental examination of the role of 'influencers' in the effects of Instagram use, informed by an understanding of social comparison theory. In Chapter Four we highlighted the role of Instagram Investment as a predictor of stress, depression, and low self-esteem, therefore, Instagram Investment is included as a covariate in this analysis of the effect of influencer status on mood and body dissatisfaction.

6.2 Abstract

Instagram is saturated with content from ‘influencers’; regular users who create high quality idealised content, attain celebrity-level following, and often leverage their popularity to earn money through brand partnership and promotion. Although existing literature generally indicates the negative impact of idealised Instagram imagery on female psychological wellbeing, the impact of influencers has yet to receive thorough attention. In this study we investigated the impact of ‘likes’ and follow counts indicative of influencer status - a metric we collectively term ‘influencer status markers’ - on the impact of idealised images on negative mood, body dissatisfaction, and self-esteem. Participants (N = 111) were randomly allocated to one of three groups: the influencer group, showing idealised imagery alongside high ‘like’ and follow metrics; the peer group, showing the same idealised imagery with regular peer level status markers; and a nature control group with matched peer level status markers. ANCOVA with planned Helmert comparisons revealed significantly higher negative mood and body dissatisfaction within the two experimental groups compared with the control group. Interestingly, the second comparison revealed no significant differences between the influencer and peer groups. Finally, there were no significant differences among the three groups for self-esteem. With peer images often idealised in the same way as those from influencers or celebrities, these findings indicate that peer content may be just as detrimental as popular influencer content to users’ psychological well-being.

Keywords: Instagram Investment, influencer, idealised social media imagery, mood, body dissatisfaction, self-esteem

6.3 Introduction

Instagram is home to a new kind of celebrity, the micro-celebrity, or social media influencer (Chae, 2018). Influencers are regular social media users who use their unique perspective to develop an online image that is attractive to others, whether that be through their role as a model, fitness trainer, blogger, or aspiring actor (Abidin, 2016; Saul, 2016), or simply their interest in topics such as lifestyle, health and fitness, travel, or fashion. Through the creation of high quality and aspirational social media content, influencers garner a celebrity-like following. They present "what many young people dream of having and the lifestyle they dream of living" (Marwick, 2015, p. 155) through public and (on Instagram) predominantly visual journaling of their lifestyle. It is difficult to quantify the number of followers required to be deemed an influencer, as the metaphorical goal posts are constantly moving. Now many influencers have followers in the hundreds of thousands, or millions; for example, travel Instagrammer Lauren Bullen currently has 2.1 million Instagram followers (Instagram, June 2019). According to De Veirman, Cauberghe, and Hudders (2017), having more followers results in users having more positive attitudes toward an influencer due to perceptions of popularity; however, when the follower to following ratio is more unequal – the influencer has many followers but follows very few accounts – a negative relationship between number of followers and likeability can be found (De Veirman et al., 2017).

Instagram influencers monetise their popularity through brand promotion (Saul, 2016). Brands are often attracted to social media influencer marketing due to the authenticity that influencers can convey (Audrezet, de Kerviler, & Moulard, In Press). With an authenticity perceived to be more credible than that of a regular celebrity (Djafarova & Rushworth, 2017), influencers manage to simultaneously convey a sense of relatable-ness, whilst being celebrity-like taste-makers (Martensen, Brockenhuus-Schack, & Zahid, 2018). Their likeability, expertise, similarity, familiarity, and above all trustworthiness, make them

persuasive opinion leaders (Martensen et al., 2018). Potentially contributing to their likeability and success, influencers often adhere to the conventional Western beauty norms of being young, trim, female, and feminine, whilst simultaneously conveying a sense of universality through a global lifestyle (Hund, 2017).

In the broader social media milieu, the impact of social media on self-esteem, body image, and appearance related satisfaction is understood to be predominantly negative (Fardouly & Vartanian, 2016; Holland & Tiggemann, 2016; Kelly, Zilanawala, Booker, & Sacker, In Press; Lonergan et al., 2019). Specific research suggests consistent findings on the Instagram platform, where survey data shows that Instagram usage has a negative impact on body satisfaction (Ahadzadeh, Sharif, & Ong, 2017). When oriented to appearance, these effects can be further exaggerated. According to an experimental investigation by Tiggemann and Barbato (2018) viewing Instagram images with appearance related comments results in even greater body dissatisfaction than those with place-based comments. Girls also indicate a preference for manipulated Instagram images; rating them as more 'pretty' and 'attractive' than unretouched images; though paradoxically, experimental evidence suggests that the effects of viewing these manipulated images on body-satisfaction are found to be more negative than viewing the unretouched originals (Kleemans, Daalmans, Carbaat, & Anschütz, 2018). Taken together, these studies suggest that images on Instagram influence body satisfaction in a consistently negative manner. Similarly, time spent on Instagram is negatively correlated with state self-esteem (Sherlock & Wagstaff, 2018). The present study aimed to add nuance to the current understanding of social media effects by examining the impact of Instagram influencer status on body satisfaction, mood, and state self-esteem.

Although there has been a recent increase in Instagram specific research, Instagram influencers have yet to attract considerable research attention. Accordingly, the impact that influencer status has on the effects of viewing Instagram images, remains largely unknown.

According to Chae (2018), users who are interested in the daily life of influencers, who frequently view influencers' posts, are more likely to compare their lives to those of the influencers. This comparison, in turn, predicts envy toward the influencer. Further, individuals with high public self-consciousness and low self-esteem engage in social comparison with influencers more frequently, subsequently eliciting envy (Chae, 2018). However, envy may not negatively impact the Instagram user in all instances. In contrast to malicious envy, which involves a desire to bring down the envied subject, benign envy describes a drive toward self-improvement (van de Ven, Zeelenberg, & Pieters, 2009). Meier and Schäfer (2018) found that the intensity of social comparisons on Instagram is positively related to inspiration, and mediated by benign envy; and that this inspiration translates to increased positive affect (Meier & Schäfer, 2018). With ubiquitous exposure to influencers, yet, limited understanding of how this demographic impact upon their viewers, further investigation is necessary.

According to social comparison theory (Festinger, 1954) humans are driven to compare themselves with others in order to provide a benchmark for appraisal of their own abilities. Research has consistently found links between Instagram use and social comparison (Chae, 2018; de Vries, Möller, Wieringa, Eigenraam, & Hamelink, 2018; Stapleton, Luiz, & Chatwin, 2017; Yang, 2016), with social comparison often identified as the mechanism by which social media use translates to negative outcomes for the viewer (Feltman & Szymanski, 2018; Hendrickse, Arpan, Clayton, & Ridgway, 2017; Sherlock & Wagstaff, 2018). Compared to text-based platforms, Instagram's strong visual cues provide infinite opportunities for upward and downward social comparison. Upward comparisons are made with those who are perceived to be superior to the self, and are threatening; while downwards comparisons are with others perceived to be inferior to the self, and help to bolster a user's positive view of the self (Chae, 2018). Selective self-presentation combined with image-

editing, results in social media users potentially engaging in more frequent upward comparisons with unrealistic and unattainably attractive targets. Adolescent users admit to feeling the need to appear interesting, likeable, and attractive in their self-presentation on Facebook and Instagram (Yau & Reich, 2018). Unsurprisingly, those who have a greater tendency to compare themselves with others experience poorer self-perception, lower self-esteem, and more negative affect after brief social comparisons on social media (Facebook) (Vogel, Rose, Okdie, Eckles, & Franz, 2015).

Social comparison theory asserts that similar individuals are the preferred targets of comparison (Festinger, 1954). On social media, individuals could be judged as similar based on characteristics such as age, physical characteristics such as hair and eye colour or weight, or social characteristics such as perceived social status or wealth. Therefore, there may be differences in the nature of comparisons and subsequent effects of images of peers versus less similar targets, such as celebrities. On the basis of this idea, Brown and Tiggemann (2016) investigated the influence of celebrity versus peer Instagram images on mood and body dissatisfaction. Both celebrity and peer images resulted in greater negative mood and body dissatisfaction than travel control images, yet did not significantly differ to one another (Brown & Tiggemann, 2016). Importantly, this finding suggests that while celebrity images are generally viewed as problematic, peer media may have similarly negative effects on the viewer.

Instagram influencers capture a unique demographic that concurrently fulfils the role of peer and celebrity. Often balancing regular life, for example, as a housewife and mother (Chae, 2018), with their celebrity-like following, influencers may still be perceived as a relatable peer. Therefore, the subjects posting and featuring in these images are potentially closer in proximity to the viewer (friends, peers, similar targets of comparison) compared to the celebrities featured on traditional high-following accounts. In the context of media

research, Cash, Cash, and Butters (1983) asserted that comparisons with peers are more impactful than comparisons with professional models. Thus, we might infer that the proximity of influencers may amplify the impact of their images, a potential finding that would be in line with the importance of peers conveyed in social comparison theory (Festinger, 1954). However, the curated feeds popularised by influencers have also infiltrated the way regular users tend to present themselves on Instagram; with regular users aspiring to create an attractive 'grid' through the use of consistent themes and filters (Buxton, 2017). Current mobile technology offers further functions such as 'portrait mode', which enables users to emulate the bokeh effect associated with professional dSLR cameras (Apple Inc., 2019). Everyday users can also employ a variety of retouching apps to 'idealise' their own images, causing the differences between celebrity and peer (and indeed, influencer) images to be less profound (Kleemans et al., 2018).

With more refined presentation and editing practices, where the style and quality of images between these groups may not differ as substantially, 'likes' and following become a key indicator of status. Indeed, engagement is essential to measuring success as an influencer, with users actively enacting strategies to maximise their engagement (Cotter, 2018). The role of these Instagram status markers is considered in the present study, with a view to enrich the media-effects literature by further establishing the contexts under which Instagram images are likely to be detrimental to the viewer.

6.3.1 The Current Research

We aimed to experimentally determine the effect of influencer status markers on the mood, body satisfaction, and self-esteem of female Instagram users. Within the context of this study 'influencer status markers' refers to the high number of 'likes' and 'follows' that can be considered indicative of influencer status; while 'peer status markers' refers to a lower number of 'likes' and 'follows' that may be found on the account of a regular user. Three

image-groups were compared for this purpose: images of female influencers with influencer status markers (influencer images); the same images alongside peer status markers (peer images); and nature (control) images. Given its relationships with depression, stress, and low self-esteem (Lowe-Calverley, Grieve, & Padgett, Chapter 4), we additionally chose to control for Instagram Investment via its inclusion as a covariate. Based on the upward appearance-based comparisons that participants are likely to make when viewing idealised images depicting other females, we predicted that exposure to influencer images alongside both influencer and peer status markers on Instagram would result in greater negative mood and body dissatisfaction than viewing nature control images.

Low status markers indicative of peer status may cause the subject to be perceived as a more similar target of comparison (with metrics comparable to one's own) (Cash et al., 1983). If similarity to peers is perceived, we predicted that those who view peer images would experience significantly greater negative mood and body dissatisfaction than those viewing influencer images. Alternatively, high likes indicative of influencer status may work in the same way as warning labels on edited media images, orienting the user to the ideal, and reminding the user that they may not match up (MacCallum & Widdows, 2018). If both influencers and peers possess relatable, peer-like qualities, but high status-markers elicit additional upward comparisons in the viewer, we predicted that those viewing influencer images would experience greater negative mood and body dissatisfaction than those who view peer images.

State self-esteem was also examined in three forms: appearance (self-esteem related to one's attractiveness); performance (self-esteem regarding abilities); and social (self-esteem related to perceptions of other's impressions) (Heatherton & Polivy, 1991). Consistent with Tiggemann and Zaccardo's (2015) comparison of Instagram fitspiration and travel images, state appearance self-esteem was expected to be lower among those viewing peer and

influencer images, compared with those viewing nature control images; while no differences were expected between groups for performance and social self-esteem.

6.4 Method

6.4.1 Participants

The sample consisted of 111 female participants between the ages of 17 and 40 (M_{age} = 23.39 years; *SD* = 6.49) who were either current Instagram users, or had used Instagram in the past. Participants were reached through advertisements posted around the university campus and social media posts on Facebook inviting female Instagram users to participate in research looking at the way people evaluate images on Instagram.

6.4.2 Design

An experimental, between-subjects design was employed, with three levels of the independent variable, image-type (influencer, peer, control). For the first analyses, mood and body dissatisfaction (controlling for baseline scores and Instagram investment) were the dependent variables. Separate analyses were later performed to examine each dimension (performance, social and, appearance) of the dependent variable, self-esteem.

6.4.3 Materials and Measures

6.4.3.1 Image Stimuli.

6.4.3.1.1 Images of female 'influencers'. A selection of images from 3 female influencers were chosen for this experiment. Influencers were defined as users with more than 100k followers, so that there was a clear distinction from peer users. Accounts were chosen on the criteria of high-quality imagery, relative obscurity, and attractiveness. All chosen accounts featured clear, high quality photography. Importantly, the profiles chosen featured influencers from Europe and the United States to reduce the likelihood that Australian participants would recognise the influencers or already follow their accounts. In the same way, highly popular yet more obscure accounts were chosen, as opposed to

recognisable internationally renowned influencers. The chosen images were piloted with three female participants to ensure that the influencers were not commonly recognised among Australian regular Instagram users, despite the large following associated with each account.

The chosen profiles depicted thin, attractive female influencers with a combination of close up and full-body photos, and featuring the influencer from a variety of angles (i.e., both facing the camera and looking away from the camera). The images depicted the female influencers in artistic, lifestyle, and travel selfies – each documenting their lives with a different style and colour story. Influencers were clothed in summer attire and most photos appeared to be staged and posed rather than spontaneous. Participants viewed a profile screenshot for each of the three users, showing their 'grid' as well as their profile information and follow statistics, before being shown 5 Instagram images per user with accompanying 'like' statistics. The number of likes for the influencer images was high (ranging from approximately 900 to 68,000) and congruent with their influencer status. 'Like' statistics matched the images as per their original Instagram source in order to maximise realism.

6.4.3.1.2 Images of female peer Instagrammers. The same 18 images used in the influencer condition were then adjusted to appear to be peer user profiles via the presentation of everyday user statistics. For this experiment peer users were defined as those with fewer than 1k followers and fewer than 100 likes on each individual image. The follow statistics and number of likes were adjusted for each image according to these parameters.

6.4.3.1.3 Control (nature) images. For the control condition users viewed Instagram profiles and images that depicted natural objects and scenery (e.g., a starfish on the sand or a road through the desert). To increase control, the nature profiles were crafted to approximately match the mood and colour story of the female profiles used in the influencer and peer user conditions; one was dark, green, and moody; another was tropical and bright; and the last was warm and coloured in desert tones. The nature profiles used the same follow

and like statistics as the peer user images. Therefore, the profiles had under 1k followers and the images attracted fewer than 100 likes. This adjustment allowed for the separation of any effects that occurred as a product of seeing idealised versus neutral imagery, as opposed to influencer versus peer status markers.

6.4.3.1.4 Manipulation Check. As a manipulation check, participants were asked to indicate whether they believed the profile stimuli depicted 'Instagram Influencers'. There were significant differences across all three groups, $F(2, 108) = 20.88$, $p < .001$, $f = 0.62$, $d = 1.24$; with influencers ($M = 5.32$, $SD = 0.92$) most commonly identified as being 'influencers', followed by peer users ($M = 4.54$, $SD = 1.15$), and then the control group ($M = 3.78$, $SD = 1.00$). These results demonstrated that the manipulation was effective, although ideally the peer and nature groups would not have significantly differed in their status evaluations. This result may be attributed to the nature of the content and the idea that being an influencer may be associated with people rather than objects; the peer group viewed images depicting female subjects, while the control group viewed matched nature images. The significant difference between the peer and influencer groups indicate that the altered status markers successfully influenced participants' perceptions and assessments of the images, such that we may draw conclusions from the present findings.

6.4.3.2 Instagram Investment. The Instagram Investment Inventory (Lowe-Calverley et al., Chapter 4) was used to measure the potential emotional investment that users may experience when actively using Instagram. Six items capture the thoughts, feelings, and reactions that a user may experience when preparing a post, posting, and anticipating responses on Instagram. Participants responded to each item on a 7-point Likert scale from *1 = strongly disagree* to *7 = strongly agree*; e.g. *"I feel anxious/nervous about the response I will receive when I post an image to Instagram"* $\alpha = .89$. Higher scores indicated greater Instagram investment.

6.4.3.3 Mood and Body Dissatisfaction. Mood and body dissatisfaction were measured using visual analogue scales (VAS) for 5 mood dimensions (anxiety, depression, happiness, anger, and confidence), and 2 body dissatisfaction dimensions (weight dissatisfaction and appearance dissatisfaction). Participants were presented with the visual analogue scales as part of an online computer-based survey. Instructions guided participants to indicate how they felt "right now" by moving a slider on a horizontal line with endpoints labelled '*none*' and '*very much*' as per Tiggemann and Zaccardo (2015). The visual analogue scale captured a range of responses from 1-100, though only the endpoints were labelled for participants. The individual mood and body dissatisfaction dimensions were then averaged to provide overall scores for mood (α =.75) and body dissatisfaction (α =.97). Scores for happiness and confidence were reversed before the mood average was calculated. Therefore, higher scores for mood were indicative of a more negative mood.

6.4.3.4 Self Esteem. Heatherton and Polivy's (1991) 20-item State Self-Esteem Scale was used to measure the performance (α =.86), social (α =.91), and appearance (α =.88) aspects of self-esteem. Participants were asked to respond to each item based on what was true of themselves at that moment. Each item was responded to on a 5-point scale (1= *not at all, 2 = a little bit; 3 = somewhat; 4 = very much*; and *5 = extremely*); e.g., "*I feel satisfied with the way my body looks right now*". Higher scores were indicative of higher self-esteem.

6.4.4 Procedure

Ethical approval was given from the University Human Research Ethics Committee. Data were collected in one-on-one lab sessions with participants based at a computer. Upon arrival individuals were randomly allocated to one of three conditions: influencer, peer, or control. Participants were asked to provide informed consent via a computer-based survey prior to commencing the study. They then completed initial mood and body dissatisfaction

visual analogue scales (VAS) by adjusting a sliding scale on the computer screen, before completing a measure of Instagram Investment.

Next, participants were shown a series of one of three types of Instagram image based on their random experimental group assignment. The Instagram images were presented on an iPod touch to replicate the usual mobile format upon which participants would normally view Instagram images. Each participant viewed and responded to 3 profile images (showing the Instagrammer's grid, bio, and follow statistics) and 5 expanded images from each of these profiles (18 images total for each participant, as per Tiggemann & Zaccardo, 2015). To ensure users were attending to the images, they were asked to respond to each image on a variety of dimensions, including: quality; appropriateness; interestingness; enjoyableness; whether they would 'like' the image; and whether they would post a similar image to their own account. After viewing the images, the participants completed post-exposure mood and body dissatisfaction VAS, the Instagram Investment measure[13], and the Heatherton and Polivy (1991) state self-esteem scale.

6.5 Results

Preliminary analyses indicated that the influencer, peer user, and control groups did not differ significantly in age, $F(2, 108) = 1.46$, $p = .237$, $f = 0.16$, $d = 0.32$; initial mood, $F(2, 108) = 0.25$, $p = .781$, $f = 0.07$, $d = 0.14$; or initial body dissatisfaction, $F(2, 108) = 0.40$, $p = .672$, $f = 0.08$, $d = 0.16$ (see Table 6.1).

[13] For completeness, the Instagram Investment measure was administered both pre- and post-image-presentation. However, as we were only interested in using II as a covariate, only the pre-exposure measure was used in analysis.

Table 6.1

Means (SD) for age, Instagram investment, initial negative mood, and initial body dissatisfaction

	Image type		
	Influencer	Peer	Nature
Age	24.41 *(7.55)*	23.81 *(6.08)*	21.95 *(5.59)*
Instagram Investment	24.68 *(7.40)*	25.32 *(8.77)*	25.59 *(6.57)*
Initial Measures			
Negative Mood	25.74 *(13.81)*	27.43 *(13.75)*	25.49 *(10.97)*
Body Dissatisfaction	42.46 *(28.22)*	48.69 *(33.93)*	46.64 *(29.31)*

Firstly, within-groups changes in mood and body dissatisfaction were examined by comparing pre- and post-image exposure scores. Participants in the influencer, $F(1, 108) = 6.19$, $p = .018$, $f = 0.09$; and peer, $F(1, 108) = 7.69$, $p = .009$, $f = 0.16$, $d = 0.32$; image groups experienced small but significant increases in negative mood following image stimuli exposure, while no significant change was found for the control group, $F(1, 108) = 1.14$, $p = .293$, $f = 0.04$, $d = 0.08$. Those in the influencer group also experienced a small but significant increase in body dissatisfaction, $F(1, 108) = 7.57$, $p = .009$, $f = 0.10$, $d = 0.20$. The peer group showed no significant changes in body dissatisfaction, $F(1, 108) = 0.74$, $p = .397$, $f = 0.04$, $d = 0.08$; however the control group experienced a decrease, albeit non-significant, in body dissatisfaction following exposure to nature images, $F(1, 108) = 3.58$, $p = .067$, $f = 0.08$, $d = 0.16$.

A frequentist approach was used to analyse the data and address our hypotheses, with null findings followed up with Bayesian analyses to determine whether there was evidence of equivalence. In order to address our hypotheses, separate ANCOVAs for mood and body dissatisfaction were performed alongside planned Helmert comparisons, firstly combining the influencer and peer groups and comparing them against the nature control group, and secondly comparing the influencer and the peer group to one another. Table 6.2 displays the adjusted descriptive statistics for the VAS measures of mood and body dissatisfaction. The

mood ANCOVA, with pre-exposure VAS scores and Instagram Investment scores entered as covariates, found a significant effect of image-type on mood, $F(2, 106) = 6.55$, $p = .002$, $f = 0.18$, $d = 0.36$ a small to medium effect. The first planned comparison showed that participants exposed to the influencer and peer images experienced significantly greater negative mood than those in the nature control group, $t(108) = -3.40$, $p < .001$, $d = 0.68$, a medium effect. The second planned comparison showed that there were no significant differences between the peer and influencer image conditions, $t(108) = -1.25$, $p = .216$, $d = 0.29$. Additionally, Bayesian analyses were run with JASP software to examine whether there was evidence of equivalence within the data. Lee and Wagenmakers (2013) interpretations of Bayes factors were used to provide evidence for the alternative hypothesis; whereby cut-offs of 1-3 = *anecdotal*; 3-10 = *moderate*; 10-30 = *strong*; 30-100 = *very strong*; and >100 = *extreme*. Bayesian analyses following up the null effect between the influencer group and the peer group ($BF_{01} = 2.53$), showed anecdotal evidence in support of equivalence.

Table 6.2

Means (SD) for negative mood, and body dissatisfaction, and self-esteem

	Image type		
	Influencer	Peer	Nature
Negative Mood[a]	28.35 *(15.60)*	32.24 *(15.50)*	24.54 *(11.30)*
Body Dissatisfaction[a]	48.31 *(30.41)*	51.49 *(35.51)*	41.41 *(32.29)*
Self-esteem			
Performance	25.73 *(6.09)*	24.54 *(5.82)*	25.41 *(4.34)*
Social	22.86 *(6.79)*	21.86 *(6.34)*	23.05 *(6.77)*
Appearance	17.14 *(5.30)*	16.49 *(5.22)*	17.43 *(5.46)*

Note: [a] = Adjusted means *(SE)*

Once again controlling for the effects of pre-exposure VAS and Instagram Investment, the body dissatisfaction ANCOVA showed a significant effect of image type on body dissatisfaction, $F(2, 106) = 4.53$, $p = .013$, $f = 0.15$, $d = 0.30$, a small effect. The first planned comparison showed that viewing the influencer and peer images resulted in

significantly greater body dissatisfaction than viewing the nature control images, $t(108) = -2.93$, $p = .004$, $d = 0.59$, a medium effect. Again, there were no significant differences in body dissatisfaction between the influencer and peer groups, $t(108) = 0.69$, $p = .490$, $d = 0.16$. Bayesian analysis provided moderate evidence in support of the null hypothesis for the comparison between the influencer and peer groups ($BF_{01} = 3.87$).

Next, we examined the three dimensions of self-esteem: performance, social, and appearance; measured post image exposure. One-way ANOVAs revealed no significant differences between the influencer, peer, and control groups on performance self-esteem, $F(2, 108) = 0.47$, $p = .628$, , $f = 0.10$, $d = 0.20$; social self-esteem, $F(2, 108) = 0.34$, $p = .711$, , $f = 0.08$, $d = 0.16$; and appearance self-esteem, $F(2, 108) = 0.31$, $p = .738$, , $f = 0.08$, , $d = 0.16$. For each of the three self-esteem dimensions, Bayesian analyses suggested moderate evidence of equivalence between the influencer and peer, influencer and control, and peer and control groups ($BFs_{01} > 3.03, < 4.14$).

6.6 Discussion

The present study tested whether a high number of follows and 'likes', suggesting influencer status, affected the mood and body satisfaction of female Instagram users. As predicted, idealised influencer imagery displayed within the influencer and peer conditions resulted in greater body dissatisfaction and negative mood compared to nature control images. This result underscores the negative psychological effects of idealised social media imagery found within the extant literature (Brichacek, Neill, & Murray, 2018; Sherlock & Wagstaff, 2018; Tamplin, McLean, & Paxton, 2018). Although our findings indicated that participants perceived the images differently based on their influencer or peer status markers, contrary to our prediction, we found no differences in mood or body satisfaction between the two experimental groups. Equivalence between these groups is particularly interesting as it indicates that regardless of the implied status of the image poster, acute exposure to idealised

female imagery on social media is equally detrimental to the viewer. Similarly, Brown and Tiggemann (2016) encountered no significant differences in the negative effects of celebrity versus peer images. We extend these findings by examining the Instagram influencers who occupy the space between celebrity and peer status. Clarifying the effects of idealised imagery in combination with influencer status markers bears theoretical contributions for the media effects and cyberpsychology literature, as well as implications for platform users.

To date, research examining Instagram influencers has predominantly focused on characteristics of the influencer (Casaló, Flavián, & Ibáñez-Sánchez, In Press; Hund, 2017), influencer platform-use practices (Erz, Marder, & Osadchaya, 2018), and their place and strategies within the modern marketing and brand promotion landscape (Audrezet et al., In Press; Casaló et al., In Press; Gräve & Greff, 2018). In the same way, the current research assists in defining the characteristics of the Instagram influencer. The manipulation of status markers successfully led to differentiation between our intended influencer and peer groups. As a result, we offer a better understanding of the way that 'like' and 'follow' metrics impact on a user's perception of influencer status.

To the best of our knowledge, this study is the first to experimentally manipulate 'likes' and 'follows' to determine whether implied influencer or peer status affects the consequences of viewing idealised Instagram images. Of primary interest is the finding that regardless of the number of follows or 'likes' attached to an account or image, idealised media depicting females on Instagram resulted in immediate detrimental effects for the viewer. Our results support previous research from Tiggemann, Hayden, Brown, & Veldhuis (2018), who found that thin-ideal images led to increased body dissatisfaction, irrespective of the number of likes. These findings speak more broadly to the idea of social comparison and wellbeing; when users compare themselves to people they consider to be superior, they are likely to reflect on their relative shortcomings and experience feelings of inadequacy

(Festinger, 1954).

Ideally this finding could be used to inform recommendations for everyday Instagram use, however the similarly negative effects for images with influencer and peer popularity complicate the ability to define realistic parameters for safe use. For example, it is not possible to simply recommend the avoidance of images from one category of users. Applications encourage and facilitate the ability for regular users to edit their images to an idealised level analogous with influencers. Our research ultimately suggests that when the images are the same (i.e., idealised), the number of likes and follows on an image may not matter. Therefore, a perfected image of an acquaintance on holiday with 50 likes, might have similarly harmful effects on mood and body satisfaction as an image taken by a popular travel blogger alongside 50k likes. Following fewer strangers on Instagram has been associated with lower risk of depressive symptoms (Lup, Trub, & Rosenthal, 2015). However, it seems that if peers are presenting idealised content, as they are able to do through commonplace re-touching (Kleemans et al., 2018), following 'real-life' friends may not shield users from all of the negative psychological effects encountered alongside Instagram use. Of particular concern, is the finding that girls appear to be poor identifiers of body retouching and reshaping; believing such images to be representative of reality (Kleemans et al., 2018). Furthermore, disclaimer labels warning of digital alteration appear to be ineffective for ameliorating the negative effects of viewing idealised imagery (Tiggemann & Brown, 2018; Tiggemann, Brown, Zaccardo, & Thomas, 2017).

The apparent impact of imagery compared to popularity is a fascinating finding given that previous research showed that viewers experience greater brain activity when viewing Instagram photos with more likes; suggesting that users may scan popular images more carefully than unpopular images (Sherman, Payton, Hernandez, Greenfield, & Dapretto, 2016). Combined with the null effect of popularity metrics in the present study, we might

infer that the impact of idealised Instagram imagery on psychological states is quite reflexive: that it is not how carefully the user looks, but what the user is looking at, that is crucial to determining outcomes. Investigating the immediacy of these effects, and the way in which users visually scan Instagram images could prove valuable for determining which factors take precedence in these situations. Notably, Sherman et al. (2016) examined adolescent participants, while the present study broadly sampled across adult age groups to capture the most frequent users of the Instagram platform (those in the 18-24, 25-34, and 35-44 age groups; Statista, 2018). It is therefore also possible that our results would differ with a younger cohort, for which popularity and implied influencer status may be a more salient feature. Replication with a sample of adolescent users is recommended. Alternatively, age may be included as an additional variable allowing for the examination of differences between adolescent and older age groups. Finally of note, significant reductions in mood and body satisfaction were found after only brief exposure to Instagram images. It is suggested that future research take a longitudinal approach to determine whether there are cumulative effects of long-term exposure to idealised Instagram images.

Surprisingly, and in contrast to Tiggemann and Zaccardo's (2015) findings, we found no effect of image condition on appearance self-esteem, despite encountering differences on the seemingly related construct, body dissatisfaction. Sherlock and Wagstaff (2018) similarly found no effect for self-esteem when examining the outcomes of viewing idealised Instagram images on dimensions of self-esteem, attractiveness, and anxiety. Therefore, while unexpected, our results are not entirely atypical. Although both appearance self-esteem and body dissatisfaction capture satisfaction with weight and body, additional dimensions of appearance self-esteem show where these constructs deviate and why we might find an effect with one construct and not the other. It is possible that the more general appearance questions posed within the self-esteem scale play a specific role here, as a participant may be

dissatisfied with their body and weight without feeling that they are globally unattractive and displeased with their overall appearance. Therefore, it may be possible to partial out some of the specific effects of viewing idealised Instagram images and surmise that viewing these images contributes to body dissatisfaction, but not global appearance satisfaction. Future research could explicitly test this hypothesis. Relatedly, the nature of the two measures may have also influenced the findings. For example, the more explicit nature of the self-esteem scale (e.g., "*I feel satisfied with the way my body looks right now*" and "*I am dissatisfied with my weight*"), may encourage participants to respond differently to the subtler and less confronting nature of the visual analogue scales, where they simply respond along each dimension. Finally, without a baseline measure it is unclear whether the lack of differences between groups is due to differences between groups to begin with. It is therefore recommended that the influence of idealised Instagram imagery on broad and localised dimensions of appearance satisfaction be examined with analogous scales, and that baseline measures be taken to control for any initial between-groups differences in self-esteem.

Whilst no effect was observed for mood, a slight non-significant reduction in body dissatisfaction was also noted after participants viewed the control images depicting scenery and nature. Environmental literature suggests that humans have an innate preference for natural environments, and that interacting with nature can have a positive impact on health and wellbeing (Grinde & Patil, 2009). Even viewing photos of green scenes may support recovery from stress (van den Berg et al., 2015), and exposure to nature films can elevate state body image (Swami, Pickering, Barron, & Patel, 2018). Perhaps viewing natural scenery draws viewers away from engaging in social comparison. Given the variety of visual content that can be found on Instagram, exploring the potentially positive or neutralising effects of green imagery in the context of social media may provide further useful insights for our understanding of visual media and health.

6.6.1 Additional Considerations

It is important to consider the nature of our sample and procedure and use this to guide future research. The present sample consisted of primarily white Australian students viewing idealised images of white, female, Instagram users. It is therefore advised that readers apply caution when generalising the results of this study. While the focus of the present study was on females, we also do not discount the similarly negative effects that idealised social media imagery can have on males (Fatt, Fardouly, & Rapee, 2019). We therefore recommend that future research examine a similar paradigm with male participants. Finally, the study took place in a laboratory environment. This context may have impacted the way participants engaged with the images compared to their regular Instagram use. However, by providing participants with the images on an iPod touch to mimic regular iPhone use, we aimed to provide an ecologically valid format of image delivery.

Although significant differences in influencer rating between the influencer and peer groups suggested that our manipulation was effective, our results also showed that participants perceived differences in status between the peer and control groups, where ideally there would be none. As previously mentioned, this may be a product of the comparison between human-female and nature imagery; as influencer status is more likely to be associated with a person or people than with inanimate objects and scenery. Differences may have also arisen as participants were not provided with a singular definition for an 'Instagram influencer'. Instead we chose to allow them to make determinations based on their own previous experience and knowledge. The effectiveness of our manipulation may have been larger had users been explicitly prompted to examine the 'likes' and 'follows' associated with each of the images. However, by leaving this definition open we were able to examine whether Instagram users perceived differences in status based on like and follow statistics alone. Indeed, this was shown within our data.

For the present study we specifically chose to investigate the effects of status markers indicative of influencer status on aspects of psychological wellbeing. To do so, we controlled for the effect of imagery by comparing influencer images with influencer metrics; and influencer images alongside peer metrics. It may be argued that by using the same images for both conditions, the lifestyle and attractiveness displayed within the images does not reflect that of a 'peer' user. Other image features, such as the high quality of the photographs may have also led to perceptions of higher status. These are valid assertions, and we recommend that future research performs a comparison between influencer and genuine peer imagery to see if the effects are consistent. However, given that this is the first research to experimentally manipulate 'likes' and 'follows' to imply influencer or peer status, using the same imagery is an important element of experimental control for avoiding a confound between status markers and the content and quality of the imagery. It is also necessary to acknowledge the increasing similarity between the Instagram content created by regular users and that of influencers who post professionally (Kleemans et al., 2018). The extent of this similarity in content quality is demonstrated in the wave of 'nanoinfluencers' currently emerging; where regular users (with as few as 1000 followers) who create high quality content are approached for Instagram marketing in the same way as traditional influencers (Maheshwari, 2018). With sophisticated and idealised imagery shared across every level of influence, it is essential to examine the effects of the likes and follows associated with the content and user. The use of likes and follows as a metric of influencer status can also be viewed as a strength of the current study, due to the heterogenous nature of defining 'peer'. Without providing a customised set of images for every participant within the peer group, it is difficult to ensure that the images chosen truly represent a peer for any given individual. This is particularly salient given the wide range of ages in the present sample, which would likely contribute further variation to each participant's definition of a peer. By using likes and

follows as the measures of influencer status, and applying the same images in both experimental conditions, it is possible to see the genuine effects that these metrics have on the viewers' perception of status and wellbeing. We therefore believe that the approach taken within the present study allowed us to contribute uniquely to the social media and wellbeing literature.

6.6.2 Concluding Comments

The current research advances the literature by considering the role of influencer status, as indicated by high 'like' and 'follow' metrics, on the psychological effects of viewing idealised Instagram imagery. Idealised imagery across both experimental groups resulted in increased negative mood and body dissatisfaction compared to the nature control group. Importantly, the results also showed no differences between the negative effects of idealised female images with high influencer metrics, compared to those alongside lower peer metrics. In the current social media climate, where high quality content is encouraged from peers and influencers alike, our findings suggest that users should be aware of the potentially negative effects of all idealised content, not only that which gains popularity.

6.7 References

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Chapter 7: General Discussion

Answering questions and determining directions…

The overall aim of this research was to provide an analysis of the way users interact with, and are affected by, images on social media. Although our research began with Facebook, our ultimate interest was in Instagram; an app that facilitates the regular viewing of an abundance of idealised images. These images are often carefully curated and edited prior to posting; potentially adjusting viewers' perceptions of what an 'average' person looks like and providing them with an unrealistic source of social comparison. Previous research suggests the negative effects of idealised Instagram images on aspects of a user's wellbeing (Brown & Tiggemann, 2016; Fardouly & Holland, 2018). However, the impact of influencer-indicative image and user popularity on these outcomes had yet to be considered empirically. Further, social comparison is established to be a critical mechanism contributing to the effects of Instagram use on the viewer (Brown & Tiggemann, 2016; Hendrickse, Arpan, Clayton, & Ridgway, 2017; Lup, Trub, & Rosenthal, 2015; Sherlock & Wagstaff, 2018). Through a broad examination of social media behaviours we also sought to determine other potential mechanisms influencing Instagram's effects.

We approached this topic in two ways. Firstly, in Part One, we chose to look at social media more broadly and examine three key behaviours: editing, posting, and 'liking'. A deeper understanding of these behaviours applied more broadly to social media and to the popular platform Facebook, helped us to develop targeted questions to ask when subsequently examining the Instagram platform. In Part Two we explored the influence of viewing Instagram images on the psychological outcomes mood and body dissatisfaction. Part One informed this investigation by highlighting the role of emotional investment in Instagram content, which we chose to define and explore, before examining the role of influencer status markers on negative psychological outcomes in an experimental paradigm.

In Table 7.1, we summarise the aims, key findings, and conclusions for each of the five research Chapters of this thesis. In the discussion to follow, we will summarise and

integrate findings, highlight key implications for theory and research, discuss the limitations of the present research, provide directions for future research, and present overall conclusions.

Table 7.1

Thesis Summary

Chapter	Aim/s	Findings	Conclusions
2. Self-ie Love: Predictors of Image Editing Intentions on Facebook	• Use the Theory of Planned Behaviour (TPB) framework to investigate the factors that influence Facebook users' intentions to post digitally altered self-images on Facebook.	• After controlling for age, editing application use, and Facebook intensity, the TPB variables significantly contributed to predicting intentions to post digitally altered selfies on Facebook in the future. • The inclusion of Narcissism further improved the ability to predict edited selfie posting. • Age and PBC were the only variables that did not contribute significantly to the prediction of intentions to post digitally altered self-images on Facebook.	• Subjective norms are an important factor in determining a user's own selfie behaviour - this speaks to the 'social' nature of social media, and a need to belong. • In general, users appear to feel a great sense of control over posting edited images, which may explain the lack of contribution from PBC. • The small contribution of Narcissism supports the existing conceptualisation of photo-related activities as self-promoting and superficial. • SNS may facilitate a 'spiral' of Narcissism, where image-based activity encourages Narcissism, which in turn encourages further image-based activity.
3. Thumbs Up: A Thematic Analysis of Image-based Posting and Liking Behaviour on Social Media	• Use thematic analysis to explore the considerations social media users have prior to posting and 'liking' image-based content on social networking sites; specifically analysing the manifestation of	• Users have different considerations for posting and 'liking' behaviours. • Audience and appearance were the most prominent themes for posting, suggesting the importance of posting for self-presentation. Appropriateness, quality, subject, response, platform, privacy, online longevity, and humour also emerged as influential	• The depth and complexity of considerations that emerged speak to the importance of social media to users' lives. • Our findings support the idea that 'Likes' are an important tool for providing social support. This study helps to define the meaning of this paralinguistic digital affordance.

	self-presentation in these behaviours.	considerations prior to posting an image on social media. • Content appreciation was the top consideration for 'liking' suggesting that users 'like' content that genuinely appeals to them. Friends, audience, reputation, appropriateness, support, and whether others 'liked' it, were also considered prior to 'liking' content.	• The emerging themes captured the self-presentation that is inherent in both posting and 'liking' behaviours.
4. A Risky Investment? Examining the Outcomes of Emotional Investment in Instagram	• Determine the association between higher levels of Instagram Investment and depression, anxiety, stress, and low self-esteem. • Observe the effect of Instagram Investment on the relationship between number of followers and self-esteem • Investigate the factor structure of the 6 Instagram Investment items using CFA	• Instagram Investment significantly improved the ability to predict depression and stress, beyond the contributions of satisfaction with life and Instagram intensity. • Instagram did not significantly contribute to the prediction of anxiety. • Instagram Investment significantly mediated the relationship between number of followers and self-esteem. • Instagram Investment is a single factor construct. • Instagram Investment is distinct from Instagram intensity and can vary independently of volume of use.	• Instagram Investment appears to be a useful variable in the prediction of the negative mental health outcomes. • Instagram Investment may help to identify users who could be vulnerable to declines in wellbeing as a product of their social media use.
5. Profiling the Invested Instagram User: Personality Predictors of Instagram Investment	• Investigate the personality traits that predict Instagram Investment.	• Of the Big 5 variables in Step 1, Neuroticism and Intellect contributed significantly to the prediction of Instagram Investment. • In Step 2, Honesty/humility and neuroticism were significant determinants of Instagram Investment.	• Consistent with the modesty hypothesis, the importance of Honesty/humility suggests that Instagram Investment is associated with desiring attention and status. • Consistent with the emotional stability hypothesis, the contribution of

			neuroticism suggests that individuals may experience stress or anxiety when they are deeply invested in their Instagram use.
6.Do the metrics matter? The effect of Influencer versus Peer Popularity on Mood and Body Dissatisfaction	• Experimentally determine the effect of influencer status markers (high follower and 'like' statistics) on the mood, body satisfaction, and self-esteem of female Instagram users.	• Participants exposed to 'influencer' and 'peer' images experienced significantly greater negative mood than those in the nature control group. • There were no significant differences between the influencer and peer groups for mood. • Exposure to influencer and peer images resulted in significantly greater body dissatisfaction than viewing nature control images. • There were no significant differences between the influencer and peer groups for body dissatisfaction. • There were no significant differences between the influencer, peer, or control groups on any dimension (performance, appearance, social) of self-esteem.	• Regardless of perceived popularity, viewing idealised Instagram images results in immediate detrimental effects on mood and body satisfaction, compared to appearance-neutral images.

7.1 Part 1: Explaining Key Behaviours

We identified three key behaviours involved in Instagram use, and social media use more broadly; editing, posting, and 'liking'. Before narrowing our focus to image-based social media, we chose to examine each of these behaviours as they apply to general social media use and Facebook use (the most popular and well researched platform at the commencement of our research). Taking this approach allowed us to further define our theoretical framework for investigating Instagram. Papers One and Two examine each of these key behaviours in turn and help to define the factors that influence *if* and *how* users are likely to engage in editing, posting, and 'liking' on social networking sites.

7.1.1 Editing

The ubiquity of smartphone cameras and internet connectivity encourages the posting of spontaneous social media imagery. However, the image editing features integrated into social media applications encourage users to perfect their images prior to posting. The extent to which a user's image authentically (and spontaneously) represents reality, may therefore be called into question. Herein lies the trap: users can engage with other users' retouched content, believe it to be representative of reality, and compare themselves with standards that may not be realistic.

The consequences of retouching ones' own images are also unclear. Rather than simply alerting the self to cultural ideals and their unattainable nature, as occurs when viewing others' content, self-photo editing provides the user with a clear side by side comparison of the actual vs the edited to perfection self – evidence that systematically distinguishes the parts of oneself that could be improved upon. From a theoretical standpoint, it is possible that retouched images function as a graphic representation of the 'ideal' or 'ought' self, in line with the *idealised virtual-identity hypothesis* (Back et al., 2010). If this is how these images are experienced by the user, they may result in feelings of dejection or

agitation that come with discrepancies between their actual self and what they would like to be or think that they should be (MacCallum & Widdows, 2018). Alternatively, and in line with the *extended real-life hypothesis*, images may allow users the social context in which to communicate more information about their true self and personality (Back et al., 2010). In any case, the salience of this visual stimuli to identity and the comparisons that ensue may be responsible for the negative psychological effects linked to editing and viewing manipulated images (McLean, Paxton, Wertheim, & Masters, 2015).

Existing research suggests that selfie manipulation is associated with high levels of body-related and eating concerns (McLean et al., 2015). Chapter Two describes the first study to apply an explanatory theory to the selfie-editing research. Our study was strengthened by its psychosocial approach, examining both the behavioural and personality factors that may influence the posting of digitally enhanced self-images on Facebook. This study contributed to the literature by highlighting the factors that influence edited selfie posting. In combination with existing research this study also helps to explain why selfie behaviour continues to be so popular. In what has been termed the '*selfie bias*', people tend to have a critical opinion of others' selfie content while having a romanticised view of their own selfie behaviour, viewing it as more authentic or self-ironic (Diefenbach & Christoforakos, 2017). Therefore, while people may have a general disdain for selfies, their biased positive attitudes towards their own selfie behaviour and social norms formed by the persistent popularity of selfies on social media may be key determinants of continued selfie-posting behaviour. Indeed, positive attitudes toward edited selfies and subjective norms were important predictors in our model; a finding that aligns with the social nature of social media, where users seek to affiliate with others. Interestingly we found that perceived behavioural control did not contribute to the intention to post digitally altered self-images on Facebook, a contrast to the existing literature on selfie posting (Kim, Lee, Sung, & Choi, 2016). This

finding highlights the sense of control users experience over editing behaviour and how this behaviour seems unique to other image-based engagement in its active nature. When a user edits their images they have the highest level of control, choosing both what to post, and how they wish to be presented through the use of retouching and filters.

The trait of Narcissism contributed significantly to the prediction of intentions to post edited selfies, albeit a small effect. We suggest that this contribution reflects the self-promotion and self-presentation inherent in both selfies and digital image alteration. Narcissism's contribution to the prediction of selfie-editing intentions may also be interpreted in light of the potential reinforcement spiral; whereby Narcissism results in greater image-based behaviour, which in turn reinforces Narcissism (Halpern, Valenzuela, & Katz, 2016). Where social media provides increasing opportunities for image-based behaviour, we may be contributing to an increasingly Narcissistic society; potentially also leading to this 'Dark' trait becoming more normalised as a product of increased prevalence. Large-scale longitudinal research, combined with a comparison of social media users vs. non-users would provide an opportunity to test this hypothesis. With links between image-editing and body-related and eating concerns (e.g., McLean et al., 2015), understanding the predictors of image-editing is useful for identifying those at risk of experiencing negative consequences as a product of their image-based behaviour. However, given the correlational nature of this research, the results should be interpreted prudently, and should be used as a platform for informing future research that can establish causal pathways for the prediction of image-editing behaviour.

7.1.2 Posting

Chapter Three outlines a qualitative study inductively determining the considerations that users have prior to posting images on social media, with a particular interest in egoistic motivations. Previous research had predominantly focused on a Uses and Gratifications

framework to describe motivations; explaining that users share images online to showcase their experiences, as a product of technological affordances, for social connection, and for engaging with a large audience (Oeldorf-Hirsch & Sundar, 2016). Similarly, users appreciate the visibility afforded by social media; allowing them to effortlessly share and access information (Oeldorf-Hirsch & Sundar, 2016; Treem & Leonardi, 2012). We proposed that an awareness of visibility would contribute to user's considerations of self-presentation. Our study was the first to specifically question users' considerations prior to posting, enquiring not about how the platform is used, but rather, what people think about before they engage in specific behaviours online. In taking this approach we gained vast insight into what drives posting on social media. Among ten major themes, consideration of audience perception was the most prominent, which, whilst being focused on others, was also strongly linked to self-presentation and the desire to be seen in a particular light. Naturally, users indicated the importance of attractiveness of the self and one's surroundings within the image, as well as the quality of the image composition itself. Appropriateness was also considered, in so far as respecting others and their sensitivities. Broadly the themes fell into three main categories: selection, posting, and aftermath; with users mindful of what makes a good image, how others will perceive and respond to the image, and the long-term implications of posting the image in terms of privacy and future regret.

Given the ease and frequency of image posting behaviour, the vast array of considerations was surprising, and suggested that a lot of complex thought goes into a seemingly simple act. This finding speaks to the importance of social media in people's lives and contributes theoretically to our understanding of why social media behaviours might be linked to negative psychological consequences such as depression and anxiety. With so many thoughts underlying the act of posting, it follows that users would be deeply invested in the content they post and the response it receives.

7.1.3 Paralinguistic digital affordances: 'Liking'

In the same way, Chapter Three explored the considerations that users have prior to 'liking' image-based social media content. The key implications of this research lie in the ability to clarify the meaning and intentions behind the ambiguous communicative gesture of 'liking'. The motivations behind 'liking' had previously been examined, however egoistic motivations had not been explored in this context (Chin, Lu, & Wu, 2015). Previous research identified potential for using 'likes' as a tool for self-presentation and impression management (Lee, Ahn, & Kim, 2014; Sumner, Ruge-Jones, & Alcorn, 2017), we were therefore interested in seeing if these egoistic considerations organically emerged in participant responses, and understanding the nature of any egoistic considerations behind liking.

Supporting the hedonic motivations that are thought to underlie 'likes' (Chin et al., 2015), the top consideration that emerged in our data was content appreciation. This finding has practical implications for everyday use, showing that users' considerations mostly align with the most obvious and intended meaning of this paralinguistic digital affordance. Knowing that users genuinely consider whether they enjoy content prior to 'liking' it means that users can be reasonably confident that others believe their images to be meritorious when they receive 'likes'. Notably, while genuine appreciation was the most prominent theme, it was only one of seven considerations that emerged prior to 'liking' another person's image on social media.

Again, social influences factored prominently into people's decisions to 'like' content. People were more likely to 'like' content posted by close friends and those they wanted to support or encourage; demonstrated concern over the implications of publicly 'liking' some content and the result this could have for their reputation; and admitted to 'jumping on the bandwagon' and conforming where posts were already widely 'liked' by

others. Once again, the range of themes demonstrated the thought and meaning that goes behind the digital gesture of 'liking'. We also confirmed the presence of egoistic motivations via strategic self-presentation and considerate 'liking' practices.

The challenge here lies with the apparent ambiguity of 'likes', as it is impossible to tell when users are 'liking' content for the value it adds to their reputation, or when they genuinely enjoy the content they view. Furthermore, it is unclear whether peoples' 'likes' reflect their true identity, or an idealised version of their self ('liking' content that they ought to like). Receiving social media 'likes' is positively associated with self-esteem (Burrow & Rainone, 2017), suggesting that 'likes' are meaningful and impactful for the receiver, therefore there is importance in understanding the meaning communicated through these gestures. It might be possible to use factors such as proximity and content-type to determine the contexts in which 'likes' are more genuinely given. For example, as more distant acquaintances lack the social obligation to support a user's content, perhaps these 'likes' are more indicative of genuine appreciation. Alternatively, there may be differences between personal posts (where 'likes' may be more genuine) versus posts of a political or societal nature (those with obvious reputational consequences; shaping viewers' opinions of a person and their place within the social landscape). Nonetheless, in the context of their ambiguity, it is advisable that users place less importance on the 'likes' they receive in terms of dictating their offline feelings, opinions, and actions.

7.1.4 Revelations for self-presentation

Taken together, Chapters Two and Three contributed to our understanding of self-presentation and how it pertains to social media behaviours. Image-editing, posting, and liking all appear to be intricately related to people's social sensitivities, with strong consideration of subjective norms and concern for affecting others. There was (sometimes explicit) indication that people's behaviours are crafted to not only be appropriate and

inoffensive for the viewer, but to also be an intentional positive reflection of themselves; users expressed actively (and sometimes deceptively) shaping their self-presentation.

The subtle links between photo editing intentions and Narcissism found in Chapter Two align with the self-focused nature of social media behaviours. Further research should examine links between Narcissism and 'liking' behaviours. While associations between Narcissism and image-based activities are in line with expectations, finding a connection between Narcissism and 'liking' would further aid in clarifying the self-focused side of 'liking' behaviour, perhaps revealing which users are more likely to 'like' hedonically, and which are likely to 'like' egoistically.

Examining editing, posting, and 'liking' overall, we can draw clear links to self-presentation, social norms, and a desire for acceptance. This aligns with the two primary motives of Facebook use: self-presentation and the need to belong; suggesting that these motives apply more broadly across social media use (Nadkarni & Hofmann, 2012). Indeed, teens report feeling the need to appear interesting, likeable, and attractive to their peers online, and putting a lot of effort into this process of favourable self-presentation (Yau & Reich, 2018). Additionally, Narcissists might be more prone to internet addiction as a product of their need for admiration, and importantly here, their need to belong (Casale & Fioravanti, 2018). Naturally, if users want to be accepted by others, they are likely to be careful to post content that would not only be seen as attractive and interesting, but just as importantly – appropriate and inoffensive. We propose that for some users an awareness of the ramifications of their image-based activities contributes to the experience of stress during the posting process, and potentially contributes to symptoms of poor wellbeing as a product of social media use.

7.2 Part 2: What is the influence of Images?

7.2.1 Instagram Investment

Building on the importance that individuals place on their social media activities, Chapters Four and Five were designed to explore the emotional investment that users experience in relation to their Instagram posts and audience response, and how this may play a role in the negative psychosocial consequences of Instagram use. Although previous studies had measured intensity of use, it appeared that there was still a gap in the measurement of emotional connection, a construct we believed to be highly relevant given the potential stress that could be linked to sharing content on Instagram. Indeed, Chapter Four showed that Instagram investment contributed significantly to the prediction of depression and stress, and captured aspects of use that were distinct from Instagram intensity. Instagram investment did not contribute to the prediction of anxiety; but mediated the relationship between number of followers and self-esteem, such that one's following did not influence their self-esteem without the mechanism of Instagram investment.

These detrimental effects to stress, depression, and self-esteem are compatible with our understanding of the meaning of 'likes' derived from Chapter Three. Users essentially send content that meaningfully contributes to their identity, out to the world for validation and quantifiable social support. Therefore, users are likely to be invested in the content they share and the response they receive. The next logical step was to define the kinds of users who would be most likely to exhibit high levels of Instagram investment, as addressed in Chapter Five. Instagram investment was positively predicted by neuroticism and negatively predicted by honesty/humility. These findings align with our understanding of the Instagram investment and personality constructs, channeling the reactivity to stress and the immodesty and status-seeking inherent to high neuroticism and low honesty/humility, respectively.

Drawing links between general Instagram use and negative psychological outcomes is an oversimplification that does not account for the specific aspects of use or the platform that impact on the likelihood of positive or negative consequences. Instead, research should

continue to define the specific conditions under which Instagram use may be harmful. It is in this way that Chapters Four and Five contribute to the broader literature, by suggesting investment as a new mechanism of Instagram effects. It is essential to acknowledge that within these chapters the effect sizes were small. Therefore, we must not overstate the results but rather use these findings as a starting point to more thoroughly examine the impact of Instagram and Instagram Investment. Refinement of this construct may help in the identification of users who are more prone to stress, depression, or low self-esteem as a product of their Instagram use. Likewise, an understanding of personality predictors might allow for simple identification of those most likely to become deeply invested in their content. Through a greater understanding of these factors, we may be able to derive specific avenues to target in the reduction of negative Instagram effects.

Chapter Six continued our aim to determine *if* and *when* Instagram use negatively affects wellbeing, while addressing our second central theme of exploring influencer status. To this end, an experimental paradigm drawing on an understanding of Social Comparison Theory was used to unpack the dynamics of image popularity and influencer status on mood, body dissatisfaction, and self-esteem. Festinger's (1954) conceptualisation of social comparison is generative for grasping how Instagram may result in harmful effects, through the presentation of idealised content that facilitates constant upward comparisons. It is here also that Festinger's attention to peers as an ideal target of comparison is of value to informing the consequences of idealised images posted by friends and family, and not just influencers, models, and celebrities. Comparing 'like' and follow statistics indicative of peer and influencer status, we found that influencer and peer images resulted in significantly greater negative mood and body dissatisfaction, compared to nature controls, mirroring earlier findings from Brown and Tiggemann (2016) who compared celebrity and peer images. Furthermore, equivalence of our peer and influencer conditions suggested that when viewing

idealised content 'like' and follow metrics have little bearing on negative effects. This finding informs our understanding of the specific aspects of social media content that may be harmful. On the individual level, we find that viewing idealised content from a friend or family member has the potential to be just as harmful as idealised content from influencers. Consequently, it might not be *who,* but *what* we look at that brings about reductions in wellbeing. Encountering the same issue as Brown and Tiggemann (2016), it is impossible to advise users to avoid exposure to peer and influencer images, as this presumably encompasses much of the content encountered in their daily use. Instead we champion Brown and Tiggemann's (2016) recommendations to educate women on the potentially harmful nature of all idealised Instagram imagery, regardless of the source.

This chapter, and the thesis more broadly, was informed by the theoretical framework of social comparison theory and the extensive research that supports the role of social comparison in media effects (e.g., Fardouly, Diedrichs, Vartanian, & Halliwell, 2015; Fardouly & Vartanian, 2015). When users view idealised content they engage in upwards comparisons that reinforce appearance ideals and their comparative shortcomings. The lack of differences found between peers and influencers conflicts with the importance of similar targets of comparison (peers) that is crucial to social comparison theory (Festinger, 1954), however we stand by the applicability for social comparison theory in explaining media effects within the context of Instagram. Going forward, it may be useful to refine the operationalisation of 'peers' to capture whether they do indeed result in greater comparison, and subsequent effects. However, it is also essential to acknowledge the complexity in defining peers in the Instagram context – where influencers, peers, and celebrities are all presented in a comparable manner – 'evening the playing field', and the nature of the images that are viewed. Additionally, in the context of similar findings, Brown and Tiggemann

(2016) highlighted that the automatic nature of social comparisons might mean that users do not consider that appropriateness of the target until after the comparison takes place.

Very recently, Instagram has also removed visible 'likes' for users in Canada, Australia, Brazil, Ireland, Italy, Japan, and New Zealand in an attempt to reduce the detrimental effects associated with their use on the platform. The move is intended to reduce users' focus on likes and restore the focus on the photos and videos that are shared (Leighton-Dore, 2019). Facebook has followed suit, with a trial to remove visible like counts in Australia, suggesting that this approach may reduce social comparison (Bogle, 2019). Our research suggests that the number of likes on viewed content does not contribute to the negative consequences of viewing Instagram content, and instead it appears to be idealised content that is problematic. It is therefore possible that this change will have little impact on reducing the negative consequences associated with viewing idealised Instagram imagery. Further, by encouraging users to focus on the content rather than the likes, where this content is idealised, negative consequences may even be amplified. It is also important to note the implications of this move in relation to Instagram Investment, where audience response impacts users affectively. Although Instagram users can no longer see others' like counts, they are still able to access their own. Users may still be preoccupied with the response they receive on their own images and impacted by their like count accordingly. Therefore, this change in the way users view the platform may not ameliorate the detrimental effects of Instagram use as intended. The role that likes can play in strategic self-presentation was also highlighted in Chapter Three. With the reduced ability to see who likes what, the utility of likes as a tool for self-presentation is eliminated. Without a visible count, the impulse to like content because others have liked it is also removed. It is therefore possible that people's considerations around their liking behaviour will evolve. Based on our understanding of these considerations as established in Chapter Three, we would predict that people will be less

concerned with externally facing factors such as audience, reputation, appropriateness, and whether others like content. Additionally, as an individual can still view the likes they receive, it is likely that likes will retain their function as a gesture of support.

7.2.2 Additional considerations

Overall, the present research may be limited by lack of diversity among participants. Across all studies there was a limited representation of non-Western participants; primarily comprising white Australian university students. Thus, our results may lack global generalisability. Given the lack of existing Instagram research we also chose to only minimally limit the age range of participants within our studies. Next, we would advise a more specific approach, sampling from particular groups of interest, for example, adolescents. Finally, all of our mixed-sex study samples contained a disproportionate number of females. Therefore the conclusions that can be drawn from these studies should be generalised cautiously as the may not be applicable to males. With the current studies providing foundational definition of Instagram Investment, further research, with larger male representation in the sample, is now necessary to determine whether sex differences are present in users' levels of this construct.

Despite attempting to maximise ecological validity through the use of an iPod and real Instagram images, Chapter Six was a laboratory study and the presentation of images was an approximation of the way most participants would view this content. It is possible that differences would be observed outside the laboratory setting with content presented on participants' actual devices and the interactive platform. In its experimental design, Chapter Six also addressed one of the major shortcomings of the social media literature to date: a predominance of correlational research. To draw further conclusions, however, we recommend a longitudinal approach, tracking specific aspects of Instagram use and wellbeing. Facilitating this approach, mobile devices are now offering more sophisticated app

tracking, allowing users to provide accurate measures of screen time, pickups, and notifications, to accompany potentially less accurate self-reported statistics. By analysing who users follow it would also be possible to derive a more comprehensive picture of what users are viewing in this time. These techniques may prove valuable for future research.

Amongst acknowledging the potential limitations of our own research, it is also important to recognise recent criticisms of the broader literature, and how our research is situated within this dialogue. Criticisms of research claiming links between idealised media and body dissatisfaction have recently emerged (Ferguson, 2018). Likewise, a study of large-scale data on digital technology and adolescent wellbeing suggests that the effects are smaller than the literature might have you believe (Orben & Przybylski, 2019). On thin-ideal media and body dissatisfaction, Ferguson (2018) highlights methodological issues that potentially exaggerate the links between these constructs, including priming and demand characteristics due to close proximity of media stimuli and body dissatisfaction measures, and failure to successfully isolate thinness by matching experimental conditions with nonhuman controls. With regards to wellbeing and digital technology use, Orben and Przybylski (2019) highlight how large-scale data may be influenced by subjective analytical decisions and are highly powered, and therefore susceptible to false positives. Employing Specification Curve Analysis (SCA) to analyse three large scale datasets on technology use and wellbeing, Orben and Przybylski (2019) found a small negative association.

These papers highlight some methodological considerations that researchers should bear in mind as the literature in this area progresses. However, these critiques also underscore some of the limitations and strengths of the present studies. In Chapter Six, whilst we use a nonhuman control, the two experimental conditions employed the same stimuli to provide an additional level of control. Nevertheless, the addition of a fourth group, with regular user statistics alongside non-idealised female images would have more thoroughly addressed the

shortcoming of isolation, as identified by Ferguson (2018). Replicating Chapter Six with this additional group would allow researchers to entirely separate the effects due to image type vs. status markers. The presentation of Instagram profiles and images, surrounded by the standard Instagram-specific contextual features also adds to the generalisability of our results to use of the true platform. However, using the actual platform to present stimuli would be even more beneficial in its realism.

The current studies also aimed to approach the topic mindful that examining links between social media use and negative outcomes is an oversimplification. Where small effects are found, the mechanisms driving these effects are not yet well understood (Orben & Przybylski, 2019). This thesis sought to identify some of the specific factors that contribute to poorer outcomes for social media users, and in doing so defined Instagram Investment and explored the role of popularity and influencer status. It is important that research continues to examine the mechanisms by which social media affects the user. It is not realistic to recommend that users disengage from a platform because of potentially detrimental effects. Rather, recognition of the factors and contexts that result in a vulnerability to negative effects will help us to better understand, or ideally prevent, negative outcomes.

7.3 Life imitating art? …and other emerging questions…

The findings of this thesis, combined with constantly changing landscape of social media, leave us with important questions for the field of cyberpsychology and social media research more broadly. In outlining these questions, we propose a number of avenues for future research.

Building on our current understanding of ‘likes’ as defined in Chapter Three, it is essential that we now look at the more complex ability to respond to others’ content through Facebook ‘reacts’. With a broader ability to express reactions via ‘like’, ‘love’, ‘haha’, ‘wow’, ‘sad’, and ‘angry’, does the meaning of a Facebook ‘like’, as described by

participants in our current study, remain the same? For example, with the advent of the 'sad' react, do users still use a 'like' to offer sympathy? Perhaps the 'like' takes on a further role as an effortless default when a user is unsure of how to respond or wants to respond quickly. Future research should examine the use of Facebook 'likes' within the context of the broader range of response options. From our current research, we recognise that these communicative tools carry a lot of meaning, thus determining more exact translations of each response is essential to progressing research and better understanding one another on social media.

Our research highlights how everyday individuals are now able to present themselves online in a very controlled, sophisticated, and polished manner. Research has previously examined the discrepancy between the offline 'real' self, and the Facebook-self; suggesting that users' online presentation generally differs from their real self (Gil-Or, Levi-Belz, & Turel, 2015). Our research suggests that it would also be valuable to now examine authentic-self and online-self discrepancies on Instagram. The visual nature of this application allows users to explicitly construct their identity; taking multiple photos and choosing the best one to post, editing the chosen photo to perfection, and then sharing it in a forum where they invite qualitative and quantitative feedback from peers and strangers. Given their participation in this process, it would be interesting to see if users believe there to be differences between their real-self and the self they present on Instagram, or whether they believe their Instagram self is authentic. This leads to the question, if social media is drawing us further and further away from authentic self-representation, does this have ramifications for how we conceptualise the self? It is possible that individuals' identities are now evolving alongside the proxy they present online that may represent their ideal-self. This may result in users trying to change in real-life to match their online profile. Indeed, the media now reports the trend toward young people seeking extreme surgical procedures to mimic the way they appear through Snapchat filters (Ramphul & Mejias, 2018; Ritschel, 2018). In a case of life

imitating art, patients are presenting altered photos of themselves and requesting changes in line with their edited-to-perfection image. Accordingly, we should empirically examine the implications of image-editing on identity and self-conceptualisation on platforms that facilitate critical self-examination. In these extreme cases, users are seeking to change their appearance, but in everyday terms, there may be more subtle negative consequences associated with users identifying with a representation of the self that does not match what they see in the mirror. There is also the possibility of detrimental consequences as a result of feedback given to the Instagram-self. If an edited image is more positively received by the public than an unedited image, this may have profound effects for the self-esteem of the user.

Finally, our findings from Chapter Six, combined with other research examining celebrities and peers (Brown & Tiggemann, 2016), leaves us with lingering questions about idealised Instagram content and status. If idealised content from celebrities, influencers, and peer users is all similarly detrimental, what are the characteristics of the idealised images that are responsible for this effect? Alternatively, are the existing studies simply failing to capture any true differences that exist. In the interests of answering this question, it is essential to hark back to Ferguson's (2018) identification of the methodological issue of isolation. To fully investigate the interplay between the nature of the image and image source, future research should involve more rigorous testing to pre-determine stimuli that represents average versus idealised bodies and faces. Moreover, finding ways to incorporate users' real-life followed-accounts would give a better indication of the true effects of peer versus influencer status and content. Everyone's definition of a peer will look slightly different, but testing accounts that truly correspond with these categories for each individual would provide a fascinating comparison alongside the results of the present findings. Lastly, longitudinal methodology is essential for determining the direction and cumulative effects of exposure to Instagram content.

7.4 Conclusion

Social media images often favour inaccurately extreme portrayals what is normal in terms of appearance and success. Users are subjected a relentless stream of these images in their daily social media use. Appreciating the key role of images in the daily interactions of social media users, the results of this mixed-methods thesis added to theories of social media in three respects. Firstly, we clarified the role of self-presentation within key image-based behaviours. Our findings suggested that egoistic motivations are present across a number of aspects of social media use. Following the apparent importance of image-based interactions, we identified and explored the presence of an Instagram-specific "investment" in the process of posting and awaiting response. Finally, we used an experimental paradigm to determine the role of perceived influencer status in viewers' wellbeing. Here we contributed to the literature on social comparison by manipulating the perceived proximity of the comparison target. In doing so, we determined that "like" and "follow" metrics appear to have little bearing on the consequences of Instagram use. Instead, the idealised nature of visual content appears to be the key determinant of declines in mood and body-dissatisfaction. Examining our findings within the context of the broader literature, we encounter an impasse: users strive to present a carefully curated image on social media (sometimes, for the deeply invested, to their own detriment), but at the same time they may suffer from the effects of viewing the curated and idealised content of others. We conclude that users may benefit from limiting their exposure to idealised social media content, though more research is needed to specify the aspects of idealised content that may be impactful. The next logical step is to track the relationships between content and consequences over time to determine causality and the direction of effects. In sum, this research adds to our understanding of the aspects of social media that are among the most harmful and the users who may be vulnerable to negative effects. We caution users to be aware of the "picture perfect" nature of Instagram

images and to understand the influence of images posted not only by influencers, but by their peers as well.

7.5 References

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7.6 Appendices

Appendix A. Ethics H0015384

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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

18 November 2015

Dr Rachel Grieve
Division of Psychology
University of Tasmania

Student Researcher: Emily Lowe

Sent via email

Dear Dr Grieve

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: **H0015384 - Behaviour and response to images in an online context**

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 12 November 2015.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.

5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**

6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Katherine Shaw
Executive Officer
Tasmania Social Sciences HREC

Appendix B. Ethics H0015775

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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

7 September 2016

Dr Rachel Grieve
Division of Psychology
University of Tasmania

Student Researcher: Emily Lowe

Sent via email

Dear Dr Grieve

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: **H0015775 - Response to images on Instagram: Fitspiration**

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Deputy Chair of the committee considered and approved the above project on 12 August 2016.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.

5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**

6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Katherine Shaw
Executive Officer
Tasmania Social Sciences HREC

Appendix C. Ethics H0016854

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HUMAN RESEARCH ETHICS COMMITTEE (TASMANIA) NETWORK

UTAS

28 September 2017

Dr Rachel Grieve
Psychology
University of Tasmania

Student Researcher: Emily Lowe

Sent via email

Dear Dr Grieve

Re: MINIMAL RISK ETHICS APPLICATION APPROVAL
Ethics Ref: **H0016854 - Instagram Investment 2 Stage Investigation**

We are pleased to advise that acting on a mandate from the Tasmania Social Sciences HREC, the Chair of the committee considered and approved the above project on 28 September 2017.

This approval constitutes ethical clearance by the Tasmania Social Sciences Human Research Ethics Committee. The decision and authority to commence the associated research may be dependent on factors beyond the remit of the ethics review process. For example, your research may need ethics clearance from other organisations or review by your research governance coordinator or Head of Department. It is your responsibility to find out if the approval of other bodies or authorities is required. It is recommended that the proposed research should not commence until you have satisfied these requirements.

Please note that this approval is for four years and is conditional upon receipt of an annual Progress Report. Ethics approval for this project will lapse if a Progress Report is not submitted.

The following conditions apply to this approval. Failure to abide by these conditions may result in suspension or discontinuation of approval.

1. It is the responsibility of the Chief Investigator to ensure that all investigators are aware of the terms of approval, to ensure the project is conducted as approved by the Ethics Committee, and to notify the Committee if any investigators are added to, or cease involvement with, the project.

2. Complaints: If any complaints are received or ethical issues arise during the course of the project, investigators should advise the Executive Officer of the Ethics Committee on 03 6226 7479 or human.ethics@utas.edu.au.

3. Incidents or adverse effects: Investigators should notify the Ethics Committee immediately of any serious or unexpected adverse effects on participants or unforeseen events affecting the ethical acceptability of the project.

4. Amendments to Project: Modifications to the project must not proceed until approval is obtained from the Ethics Committee. Please submit an Amendment Form (available on our website) to notify the Ethics Committee of the proposed modifications.

5. Annual Report: Continued approval for this project is dependent on the submission of a Progress Report by the anniversary date of your approval. You will be sent a courtesy reminder closer to this date. **Failure to submit a Progress Report will mean that ethics approval for this project will lapse.**

6. Final Report: A Final Report and a copy of any published material arising from the project, either in full or abstract, must be provided at the end of the project.

Yours sincerely

Katherine Shaw
Executive Officer
Tasmania Social Sciences HREC